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MONTHLY WEATHER REPORT  
OF THE

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South Africa, METEOROLOGICAL OFFICE.

VOL. XVII.

NOVEMBER, 1936.

NO. 11.

A COOL, DULL AND WET MONTH.

GENERAL. - A comparatively cold month with the day temperatures generally well below normal, especially over the eastern half of the Cape Province and Natal. Rainfall well above normal over the greater part of the Union with fairly widespread floods causing damage to railways, roads, dams and crops. Frequent and very severe thunderstorms in many instances accompanied by devastating hailstorms. Such were the general features of the weather for November, 1936.

PRESSURE. - Mean sea level barometric pressure, as may be seen from the accompanying map, (chart 1), was about five-hundredths of an inch lower in the centre and northern borders of the Cape and a similar amount higher than the normal over the southeast Cape and Natal. The increase in pressure over the eastern parts of the Union resulted in a westward thrust of the equatorial tongue of low pressure in the centre and furthermore favoured a very marked influx of moisture from the Indian Ocean which extended, due to the western position of the equatorial low, to the central and western portions of the Cape.

Lows appeared on the coast on the 1st, 4th to 5th, 7th, 13th, 20th, 22nd and 26th to 28th whilst anticyclones passed from the west or southwest coasts towards the east on the 2nd to 3rd, 7th to 12th, 13th to 19th, 23rd to 25th and 29th to 30th.

TEMPERATURE. - As gathered from the reports of a number of representative stations the mean temperature over the Union as a whole was  $66.0^{\circ}\text{F}$ ., or  $1.9^{\circ}$  below normal. Of the provinces, taken separately, the mean temperature over the Transvaal was  $1.7^{\circ}$ , over the Free State  $2.9^{\circ}$ , over Natal  $3.2^{\circ}$  and over the Cape Province  $1.6^{\circ}$  below the respective normals. The distribution of departures from the normal showed negative values over the whole Union, except over the southwestern Cape and along the west coast, where the mean temperature was above normal. The negative departures were largest (from  $2^{\circ}$  to  $6^{\circ}$ ) over the eastern half of the Cape Province, the Free State and Natal. (Chart II).

As regards the mean maxima (or day temperatures) these were well below normal except over the southwest Cape where they were slightly above normal (chart III). The distribution of departures from the normal mean maximum temperatures showed very large negative values (from  $5^{\circ}$  to  $11^{\circ}$ ) over the eastern half of the Cape Province and Natal. Considering the provinces as units, mean maxima were below normal by  $3.5^{\circ}\text{F}$ . over the Cape Province,  $2.8^{\circ}$  over the Transvaal,  $4.8^{\circ}$  over Natal and  $3.9^{\circ}$  over the Free State, whilst for the Union as a whole the general mean maximum was  $76.7^{\circ}\text{F}$ . or  $3.5^{\circ}$  below normal. The highest maxima registered in each province were  $106.0^{\circ}$  at Goodhouse (C.P.) on the 25th;  $102.0^{\circ}$  at Messina in the Transvaal;  $101.0^{\circ}$  at Otobotini (Natal) on the 7th, and  $93.0^{\circ}$  at Kroonstad (O.F.S.) on the 5th.

Mean minima were above normal over the western half and the northern borders of the Cape Province and over the northern Transvaal (chart IV). Over the remainder of the Union the mean

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minima were generally slightly below normal. Considering the provinces separately, mean minima were below normal by  $0.6^{\circ}\text{F}$ . over the Transvaal,  $1.5^{\circ}$  over Natal, and  $1.9^{\circ}$  over the Free State, whilst over the Cape Province the mean minimum was above normal by  $0.3^{\circ}\text{F}$ . For the Union as a whole the general mean minimum was  $55.1^{\circ}\text{F}$ ., or  $0.4^{\circ}$  below normal. The lowest minima recorded for this month were  $34.1^{\circ}$  at Willowmore (C.P.) on the 11th;  $37.0^{\circ}$  at Belfast (Tvl.) on the 1st;  $42.0^{\circ}$  at Ladysmith (Natal) on the 8th; and  $35.0^{\circ}$  at Harrismith (O.F.S.) on the 1st.

**PRECIPITATION.** - The rainfall for November was above normal, except over the southwestern Cape Province (including Cape Town, Groot Drakenstein, Ceres and Paarlberg) over the northern Transvaal, and over two isolated areas, viz:- (1) around Kenhardt and Prieska and (2) around Prince Albert Road. Considered as units the four provinces all showed surpluses amounting over the Free State to 164%, over the Transvaal to 56%, over the Cape Province to 118%, and over Natal to 112% of the respective normal precipitation for this month. As regards the Cape Province the winter rainfall area considered as a unit showed a surplus of 55% as against a surplus of 126% for the remainder of the Cape. For the Union as a whole there was a surplus of 96%.

Over the larger part of the Union the actual precipitation was more than twice the normal amount, whilst in the western Cape the amounts varied from two to eight times the normal precipitation (chart V). In the southwestern Cape, on the other hand, the rainfall generally did not reach half the normal amount. Excepting the western and southwestern Cape and the northern Transvaal, rain was general over the Union during the greater part of the month, setting in towards the end of the first week and continuing to the 28th, with temporary breaks around the 14th and 15th and again on the 25th. Heavy falls, from one inch to two inches and more occurred in the southeastern Cape and the northern borders of the Cape, Natal, the Free State and the eastern, centre and western Transvaal on 5 or more days during this month, resulting in widespread floods in different parts of the country and damage to dams, crops and lands, in many districts prohibiting ploughing and cultivating operations.

**THUNDERSTORMS AND HAIL.** - Thunderstorms were exceptionally frequent and very severe, occurring almost daily over the greater part of the Union, frequently accompanied by devastating hailstorms which in many cases destroyed valuable crops. Hail was experienced frequently, especially over the southern half of the Transvaal, the Free State and Natal and occasionally in the central and eastern districts of the Cape Province, including the Kimberley and Vryburg areas.

**STRONG WINDS AND GALES**, mainly southerly to easterly confined mostly to the southwestern and southern Cape Province, on some days extended over the whole of the Cape Province and also affected Natal and the Free State.

**THE CUMULATIVE PRECIPITATION**, from the 1st of January to the 30th of November, 1936, was above normal over the three northern provinces (excluding an area around Pietersburg and Elim in the Transvaal and a small area around Harrismith in the Free State), over the Cape Province districts adjoining the western Transvaal and the Free State and over the southeastern Cape, including Middelburg, Graaff Reinet, Steytlerville and excluding a narrow coastal belt extending from Port Elizabeth to East London. Over the remainder of the Cape Province the rainfall was below normal excepting three isolated areas, viz:- (1) an area including Garies and Calvinia, (2) an area including Matjiesfontein, Swellendam and George, and (3) a small area around Carnarvon. The provinces, taken separately, showed surpluses amounting for the Transvaal to 21%, for the Cape Province to 16% for the Free State to 19% and for Natal to 32% for the respective normals for the

For the period 1st July to 30th November 1936, was above normal over the greater part of the Union, and below normal over the following areas, viz:- In the Cape Province (1) an area in the northwestern Cape including Kenhardt, Prieska, Griquatown and Upington; (2) a narrow belt along the western and southwestern coasts, including, in the southwest Cape, Cane Town Groot Drakenstein and Piquetberg; (3) three small isolated areas, one around Prince Albert Road, one around Hanover, and the other around Kokstad; in the Transvaal (1) an area including Wakkerstroom and Standerton (2) an area including Rociberg and Nylstroom and (3) a small area around Elim in the northern Transvaal (chart VI). Separately the four provinces all showed surpluses amounting to 27% for the Cape Province, 58% for the Free State, 30% for Natal and 25% for the Transvaal giving a surplus of 30% for the Union as a whole.

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OBSERVERS' NOTES FOR NOVEMBER, 1936.

BELHAMMRA PARK. - 14th : hurricane from south 5.30 - 6.00 p.m. Most terrific in my 13 years' experience here. Rainfall 3.44 inches on eight days. - A. Riley.

SLURRY (MARICO). - Considerable damage to fruit, wheat and other crops, also to small stock by hail and floods during month (hail reported on 9th, 19th, 23rd). Rainfall 5.46 inches on eleven days. - W. Winton.

OTTOSHOOP (MARICO). - 9th: heavy hail, damage to crops, trees and gardens. Rainfall 8.35 inches on nine days. - South African Police.

KOEDOESFONTEIN (RUSTENBURG). - 10th: Hail, great damage. Rivers up (3.39). Rainfall 8.25 inches on thirteen days. - J. Todd.

DOORNGAARD (RUSTENBURG). - Hier en daar groot skades veroorsaak deur hael (4.01 for five consecutive days). Rainfall 7.09 on twelve days. - H. Helberg.

GROENVLEI (RUSTENBURG). - 10th: moderate hail during day and night. Good crops expected. Yield in good condition. Rainfall 5.02 inches on six days. - J. Erasmus.

ROODEKRANTZ (KRUGERSDORP). - 9th: willow trees destroyed. 10th: terrific hail, all strawberries and tomatoes destroyed. Rainfall 9.55 inches on seventeen days. - A. Cheyne.

CRAIGHALL (JOHANNESBURG). - 24th: very heavy hail, all fruit and vegetables destroyed. Rainfall 7.47 inches on fourteen days. - G. Freeman.

OLIFANTSPoORT (WATERBERG). - Ploughing and planting mealies. Seeds germinating well - up in five days. Rainfall 3.49 inches on eleven days. - D. Wright.

LANDAU MINE (MIDDELBURG). - 29th: hail damage to fruit and green crops. Rainfall 6.85 inches on fifteen days. - H.J. Blevin.

HENDRIKSPAN (BETHAL). - 22nd: large hail, much damage to crops. Rainfall 6.98 inches on sixteen days. - T. Jooste.

MORGENZON (ERMELLO). - Hail, gardens damaged, otherwise no ill effects. Lands too wet to plough and young mealies have been drowned by mud and rain. Rainfall 7.38 inches on twelve days. - H. Hamann

CARNARVON. - Baie winderige maand. Oor die algemeen kouer as gewoonlik die tyd van die jaar. - Mr. Crafford.

NELSPoORT. - November was a changeable month. - The Superintendent, Sanatorium.

QUEENSTOWN. - A very wet and for the most part a cold month. Storms occasionally accompanied by hail. Little damage done by storms. - W. Everitt.

WILLOWMORE. - Some very windy and cold days. - G.P. Steyn.

- R.N. Marillier.

MIDDELBURG (Transvaal). - On 30th : portions of town and district have had heavy falls of hail and crops in these portions were wiped out. Farm dams reported to have burst. - V.P. Ross

POTCHEFSTROOM. - 1st week, dry and hot, 2nd and 3rd weeks rainy: rainfall double the average for 32 years being 6.69 inches. 4th week cool and sunny. - The Principal (School of Agriculture).

DURBAN (POINT). - Continuous rains from 7th to 20th. Total 10.05". - The Lightkeeper.

PORT SHEPSTONE. - Weather during month wet and gloomy with cold and icy winds. - The Lightkeeper.

FAURESMITH. - Rainfall: record for past 10 years (Total 5.06"). - The Officer in Charge, Veld Reserve Experimental Station.

MOKHOTLONG. - Snow on mountain tops on 11th, 16th, 18th, 19th and 20th. - Bechuanaland Police.

LERIBE. - Hail on 10th. Mountain ranges clad in snow on the 13th. The Assistant Commissioner.

KIMBERLEY. - Terrific thunderstorm on 26th, registering 2.70 inches of rain. - The Gaoler.

LEMANA. - Heavy thunderstorm and hail four miles northwest on the 15th. A good deal of damage done. Rainfall on 15th, 0.95 inches at station. - H. Thomas.

RIETVLEI. - Baie, baie reen, hael, stormwinde, donder en blits. Ook baie koue dae en negte tussenin. Neerslag 9.00 duim op 15 dae. - N.C. Steenkamp.

PROTEST. - The weather remained overcast and cold. Crops are consequently very backward. R. Croote.

MUSHROOM. - Several lightning casualties - natives and cattle struck. Washaways - roads cut of commission. - C. Jennings.

BAN RIFT. - On 20th devastating hailstorm registering 0.65 inches of rain. - J. Jacobs.

M. ERU. - Hail did damage to wheat etc. Terrific storms experienced, lightning severe, killing several natives in location. Dates on which hail occurred: 22nd, 27th, and 28th. - The Agricultural Officer.

KROONSTAD. - Lande onbercikbaar weens reens. - D.J. van der Berg.

MODDERPOORT. - Hail on 10th and 13th did damage to crops. - J.W. Eddols.

MOUNT EDGECOMBE. - Weather conditions are now very favourable for the growth of young sugar cane - The Manager, Sugar Plantation.

ANDRIESFONTEIN. - A stormy month. Hail on several farms in district. On 28th hail - no damage. - H. van der Merwe.

SILENT. - A very dry month. Rainfall 0.54 inches. - R.W. Short.

ELGIN. - Suid-ooste winde buitengewoon sterk en aanhouwend. Besonder koud vir November. - Die Regerings- Bosbouer.

#### RAINFALL, NOVEMBER 1936.

STATION	NOV. 1936	NORMAL	DIFF.	%	FROM 1/1/36			FROM 1/7/36			SEAS -AL
					NORMAL	DIFF.	%	NORMAL	DIFF.	%	
<u>ORANGE FREE STATE</u>											
BETHULIE	6.31	1.49	+4.82	424	17.74	16.34	+1.40	11.06	4.17	+6.89	266
BLOEMFONTEIN	4.48	2.13	+2.35	211	20.73	18.52	+2.21	6.65	5.23	+1.42	127
BOSHOF	4.11	2.17	+1.94	189	18.84	16.18	+2.66	6.35	4.73	+1.62	134
FAURESMITH	5.06	1.66	+3.40	328	16.07	12.73	+3.34	8.55	4.72	+3.83	181
HARRISMITH	9.59	4.27	+5.32	225	23.57	24.94	-1.37	12.42	9.84	+2.58	116

## RAINFALL, NOVEMBER 1936 (CONTINUED).

STATION	NOV. 1936	NORMAL	DIFF.	%	FROM 1/1/36	NORMAL	DIFF.	FROM 1/7/36	NORMAL	DIFF.	SEASON %
<u>ORANGE FREE STATE (Contd.)</u>											
KROONSTAD	10.75	3.07	+7.68	350	28.74	19.54	+9.20	12.22	7.04	+5.18	173
LADYBRAND	7.27	3.77	+3.50	193	24.22	23.85	+0.37	11.16	8.52	+2.64	131
LINDLEY	9.48	3.28	+6.20	289	29.21	20.96	+8.25	11.84	7.31	+4.53	162
VREDE	7.62	4.51	+3.11	169	31.33	22.92	+8.41	10.64	9.19	+1.45	116
WINBURG	8.16	3.02	+5.14	270	22.78	19.20	+3.58	9.97	6.28	+3.69	159
<u>NATAL.</u>											
DUNDEE	9.99	4.33	+5.66	251	42.52	26.81	+15.71	13.72	9.74	+3.98	141
DURBAN	10.05	4.68	+5.37	215	54.36	39.92	+14.44	19.17	16.02	+3.15	120
EMPANGENI	9.54	4.63	+4.91	206	52.15	37.65	+14.50	19.54	14.93	+4.61	131
ESTCOURT	5.87	3.47	+2.40	169	39.66	24.18	+5.48	9.09	8.11	+0.98	112
LADYSMITH	8.09	3.50	+4.59	231	30.92	26.03	+5.89	10.78	8.64	+2.14	125
MELMOTH	6.41	4.16	+2.25	154	28.32	26.90	+1.42	10.89	10.30	+0.59	106
OTOBOTINI	10.79	2.87	+7.92	376	31.26	19.57	+11.69	13.67	6.53	+7.14	247
PIETERMARITZBURG	8.69	4.36	+4.33	199	34.40	30.36	+4.04	14.30	11.13	+3.26	129
STANGER	13.01	4.78	+8.23	272	56.00	35.44	+20.56	21.01	14.91	+6.10	141
UDBOMBO	9.73	4.47	+5.26	218	32.88	29.71	+3.17	13.78	11.61	+2.17	119
VRYHEID	7.05	4.54	+3.41	175	42.82	28.06	+14.76	12.77	10.64	+2.13	120
WEENEN	5.49	3.63	+1.86	151	23.95	22.31	-1.64	8.10	7.98	+0.12	102
<u>TRANSVAAL.</u>											
BARBERTON	7.24	4.59	+2.66	158	31.57	25.50	+6.07	12.07	8.81	+3.26	137
BELFAST	7.14	5.18	+1.96	138	27.48	25.93	+1.55	11.12	9.88	+1.24	113
BETHAL	8.12	5.06	+3.06	161	32.06	24.02	+8.94	12.54	9.77	+3.07	132
BLOEMHOF	4.15	2.22	+1.93	187	16.02	16.23	-0.21	4.18	4.48	-0.33	93
DELIM HOSPITAL	3.12	3.44	-0.32	91	24.10	26.60	-2.50	5.84	6.40	-0.86	87
EMBLO	7.71	4.79	+2.92	161	26.08	24.35	+1.73	11.32	10.74	+0.58	105
HARDEBORG	8.10	4.17	+3.93	194	34.23	31.54	+2.69	14.60	8.16	+6.44	179
HEIDELBERG	7.78	4.98	+2.80	156	30.93	23.56	+7.37	10.87	8.95	+1.92	121
JOHANNESBURG Observ.	6.68	4.71	+1.97	142	27.92	24.74	+3.18	8.47	8.82	-0.35	96
JOUBERT PARK	8.46	4.90	+3.56	173	30.84	27.23	+3.61	10.61	9.16	+1.45	116
KLERKSDOORP	7.75	2.97	+4.78	261	26.34	19.29	+7.05	9.41	5.93	+3.48	159
KOMATIPOORT	8.77	3.06	+5.71	286	40.68	21.96	+18.70	18.09	5.37	+12.72	337
LICHENBURG	4.37	3.03	+1.34	144	23.03	19.22	+3.81	5.91	5.84	+0.07	101
MESSINA	1.81	2.38	-0.57	76	13.10	11.39	+1.71	3.95	3.38	+0.57	117
MIDDELBURG	8.09	5.06	+3.03	160	27.98	24.13	+3.85	11.81	9.12	+2.09	123
NYLSTROOM	4.48	3.52	+0.96	127	24.05	20.76	+3.29	6.86	6.49	-0.54	92
PETERSBURG	3.18	3.02	+0.16	105	16.15	16.83	-0.68	6.32	5.57	+0.75	114
PIET RETIEF	10.01	5.22	+4.79	192	33.95	23.38	+4.57	14.93	11.76	+3.17	127
PILGRIMS REST	4.97	4.74	+0.23	105	35.99	33.48	+2.51	13.92	8.88	+5.04	157
POTCHEFSTROOM	6.69	3.25	+3.44	206	27.82	19.83	+7.99	8.39	6.48	+1.91	130
PRETORIA	6.69	4.72	+1.97	142	33.39	25.86	+9.53	8.71	8.66	+0.05	101
ROOIBERG	4.14	3.79	+0.35	109	23.34	19.64	+3.70	5.69	6.66	-0.97	85
RUSTENBURG	6.80	3.65	+3.15	187	31.87	21.43	+10.44	8.03	6.93	+1.10	116
STANDERTON	7.45	4.70	+2.75	159	28.74	24.94	+3.80	9.35	9.92	-0.57	94
VILLA NORA	4.16	3.60	+1.56	160	15.47	14.33	+1.14	5.16	4.21	+0.96	123
WALKERSSTROOM	0.02	4.99	+3.03	161	30.42	26.06	+4.36	10.42	10.60	-0.18	98
WOODBUSH	13.14	7.26	+5.88	181	74.42	57.47	+16.95	23.70	14.91	+8.79	159
ZWARTKRAST	5.46	3.33	+2.13	164	24.08	19.48	+4.60	7.01	5.83	+1.18	120
<u>SWAZILAND</u>											
IRABANE	7.65	6.00	+0.85	113	52.47	45.61	+6.86	17.72	15.84	+1.88	112
<u>CAPE PROVINCE - SUMMER RAINFALL AREA.</u>											
LIWAL NORTH	4.73	2.25	+2.48	211	17.57	17.53	+0.04	8.69	5.35	+3.34	162
BEAUFORT WEST	0.98	0.73	+0.25	134	6.24	8.43	-2.19	2.74	2.62	+0.12	105
BEDFORD	5.66	2.93	+2.73	193	26.28	24.56	+1.72	14.29	9.19	+5.10	156
BRITSTOWN	1.81	0.78	+1.03	232	9.11	10.08	-0.97	2.71	2.33	+0.38	116
CARNARVON	1.27	0.62	+0.65	205	8.29	7.32	+0.97	3.10	1.81	+1.29	171
EAST LONDON	6.67	3.24	+3.43	206	25.35	29.39	-4.04	14.20	13.06	+1.14	109
FRASERBURG	0.44	0.40	+0.04	110	4.30	6.22	-1.92	1.79	1.54	+0.25	116
GEORGE	8.67	3.12	+5.55	278	34.05	30.91	+3.14	20.02	13.79	+6.23	145

## RAINFALL, NOVEMBER 1936 (CONTINUED).

STATION	NOV. 1936	NORMAL	DIFF.	%	FROM 1/1/36	NORMAL	DIFF.	FROM 1/7/36	NORMAL	DIFF.	SEASON -AL
<u>CAPE PROVINCE - SUMMER RAINFALL AREA (Contd.)</u>											
GRAAFF REINET	2.89	1.44	+1.45	201	18.28	12.55	+5.73	8.65	4.64	+4.01	186
GRAHAMSTOWN	6.64	2.73	+3.91	243	22.50	19.52	+2.98	13.97	8.87	+5.10	158
GRIGUATOWN	1.09	0.94	+0.15	116	8.16	11.24	-3.08	2.23	2.47	-0.24	90
GROOTFONTEIN	3.97	1.82	+2.45	262	13.05	12.09	+0.96	5.85	3.67	+2.68	161
HANOVER	1.36	1.06	+0.10	108	10.29	12.91	-2.62	2.30	3.45	-1.15	67
HOPETOWN	3.72	1.21	+2.51	308	11.44	11.09	+0.35	4.63	2.90	+1.73	160
IDUTIWA	5.46	3.30	+2.16	166	26.21	21.24	+4.97	11.03	9.31	+1.72	118
KENHARDT	0.18	0.35	-0.17	51	3.39	5.29	-1.90	0.66	1.17	-0.51	56
KIMBERLEY	5.52	1.46	+4.06	378	19.40	13.59	+5.81	7.89	3.62	+4.27	218
KINGWILLIAMSTOWN	4.99	2.68	+2.31	186	17.96	22.27	-4.31	9.64	9.06	+0.58	106
KOKSTAD	5.44	3.86	+1.58	141	24.35	25.60	-1.25	8.85	9.26	-0.41	96
MATJESFONTEIN	0.95	0.28	+0.67	339	6.56	6.30	+0.26	4.29	2.50	+1.79	172
MACLEAR	7.02	3.65	+3.37	192	30.36	27.80	+2.56	11.88	9.10	+2.78	131
MAFEKING	7.40	2.79	+4.61	266	24.49	17.04	+7.45	9.22	5.41	+3.81	171
MOSSEL BAY	2.63	1.31	+1.32	201	15.28	15.70	-0.42	8.29	7.34	+0.95	113
PHILIPSTOWN	2.24	1.15	+1.09	195	9.25	11.93	-2.68	3.53	3.10	+0.43	114
PORT ELIZABETH	4.66	2.06	+2.60	226	20.67	21.06	-0.39	12.45	10.76	+1.69	116
PORT ST. JOHNS	9.72	4.88	+4.84	199	55.99	42.24	+13.75	21.10	17.96	+3.14	118
FRIESKA	0.64	0.70	-0.06	92	4.09	8.56	-4.47	0.81	1.76	-0.95	46
PRINCE ALBERT ROAD	0.38	0.39	-0.01	98	3.04	3.86	-0.82	1.81	1.41	+0.40	128
QUEENSTOWN	7.19	2.29	+4.90	314	32.04	19.32	+2.72	12.15	6.03	+6.12	202
SOMERSET EAST	5.97	2.34	+3.63	255	26.40	19.66	+6.74	14.56	7.49	+7.07	194
STEYNSBURG	3.39	1.31	+2.08	260	14.47	13.03	+1.44	7.33	3.73	+3.60	197
STEYTLERVILLE	1.89	0.89	+1.00	213	9.13	8.27	+0.86	4.18	3.09	+1.09	135
SWELLENDAM	9.44	2.57	+6.87	367	31.96	28.29	+3.67	21.66	12.64	+9.02	171
SYDNEY'S HOPE	4.84	2.30	+2.54	210	21.44	20.72	+0.72	10.99	9.19	+1.80	120
UITENHAGE	4.57	1.66	+2.91	276	17.91	17.50	+0.41	11.21	8.23	+2.98	136
UMTATA	8.03	2.71	+5.32	296	26.53	22.48	+4.05	12.48	8.13	+4.35	154
UNIONDALE	2.24	1.03	+1.21	218	9.73	12.35	-2.62	5.86	5.59	+0.27	105
UPINGTON	0.67	0.54	+0.13	124	3.60	6.54	-2.94	1.16	1.25	-0.09	93
VICTORIA	1.97	1.53	+0.44	129	9.93	8.39	+1.51	3.86	2.73	+1.13	130
VRYBURG	5.33	1.73	+3.60	308	24.30	16.37	+7.93	6.51	3.45	+3.06	189
<u>CAPE PROVINCE - WINTER RAINFALL AREA</u>											
CALEDON	2.73	1.32	+1.41	207	18.35	20.21	-1.86	10.48	10.39	+0.09	101
CALVINIA	3.39	0.42	+2.97	808	8.49	7.96	+0.53	6.97	3.27	+3.70	213
CAPE TOWN Roy. Obs.	0.22	1.05	-0.83	21	18.94	23.85	-4.91	9.22	11.85	-2.63	78
CERES	0.46	1.74	-1.28	26	34.48	39.33	-4.85	21.30	20.83	+0.47	102
CLANWILLIAM	1.09	0.36	+0.73	303	7.74	8.40	-0.66	6.09	4.07	+2.02	149
GARIES	0.59	0.19	+0.40	311	5.04	5.02	+0.02	4.31	2.46	+1.85	175
GROOT DRAKENSTEIN	0.34	1.63	-1.29	21	26.85	34.30	-7.45	13.51	17.39	-3.88	78
D'OKIEP	0.00	0.19	-0.19	0	4.11	6.50	-2.39	3.93	2.91	+0.02	101
PIQUETBERG	0.76	0.96	-0.20	79	14.27	19.35	-5.08	8.25	10.18	-1.93	81
PORT NOLLOTH	0.12	0.07	+0.05	172	1.68	2.28	-0.60	0.90	1.03	-0.13	87
SUTHERLAND	1.97	0.50	+1.47	394	8.49	8.72	-0.23	5.79	3.44	+2.35	168
WORCESTER	1.90	0.52	+1.38	365	10.49	11.74	-1.25	8.02	8.93	+2.09	135

## AIR TEMPERATURES, NOVEMBER 1936.

STATION	MAXIMUM MEAN NORMAL DIFF.	MINIMUM MEAN NORMAL DIFF.	MONTHLY MEAN MEAN NORMAL DIFF.	ABS. MAX.	DATE	ABS. MIN.	DATE						
<u>CAPE PROVINCE.</u>													
LIWAL NORTH	76.8	80.7	-3.9	50.0	49.8	+0.2	63.4	65.3	-1.9	90.0	14	44.0	24
BRITSTOWN	-	85.4	-	52.7	54.3	-1.6	-	69.9	-	-	-	46.0	2
CAPE L'AGULHAS	67.6	68.0	-0.4	58.1	57.0	+1.1	62.9	62.5	+0.4	72.0	26,27	51.0	8
CAPE TOWN Roy. Obs.	75.0	73.5	+1.5	58.7	55.5	+3.2	66.9	64.5	+2.4	88.7	21	51.0	8

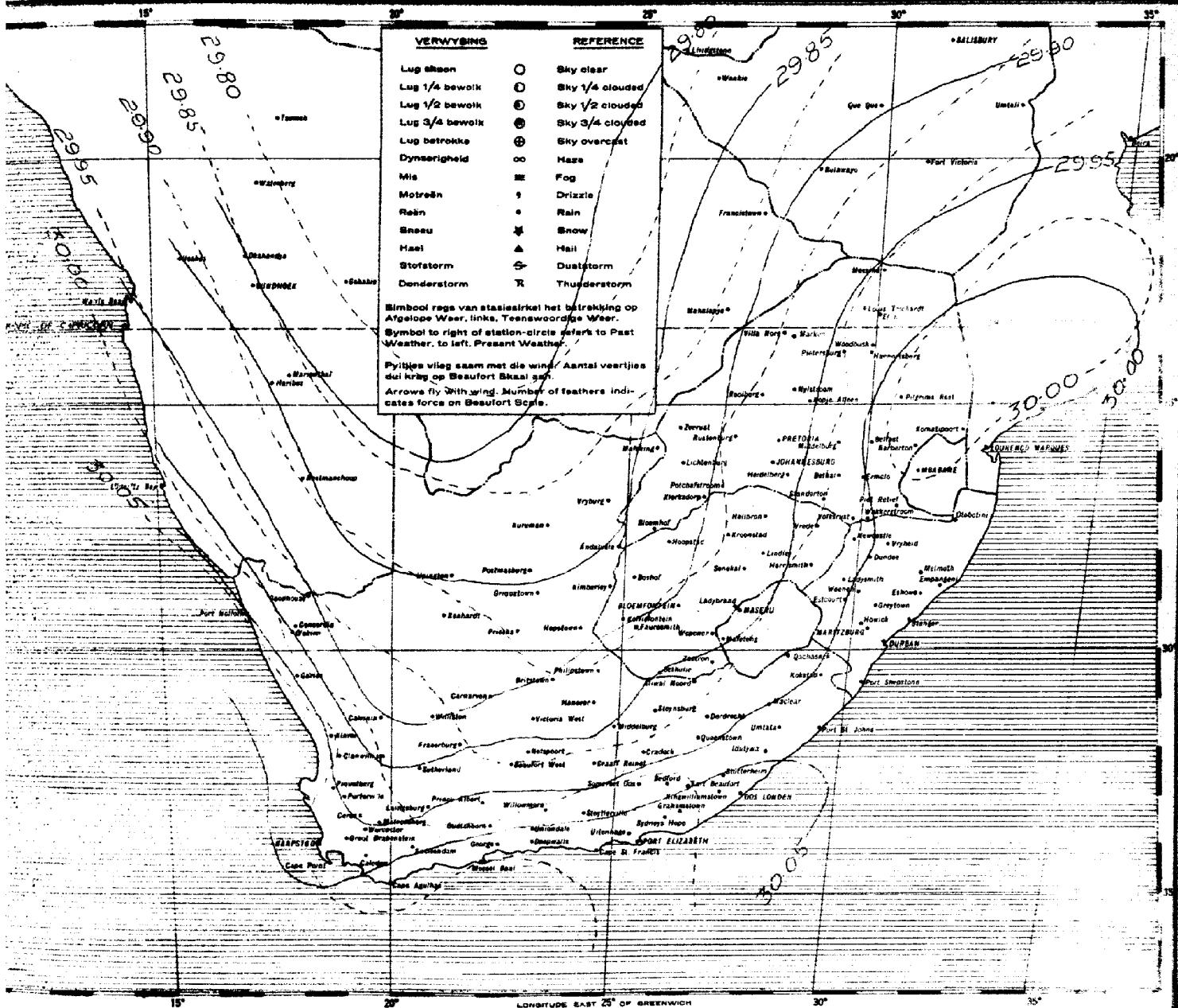
AIR TEMPERATURES, NOVEMBER 1936.  
(CONTD.)

STATION	MAXIMUM MEAN NORMAL DIFF.			MINIMUM MEAN NORMAL DIFF.			MONTHLY MEAN. MEAN NORMAL DIFF.			ABS. MAX.	ABS. DATE	ABS. MIN.	ABS. DATE
<u>CAPE PROVINCE.</u>													
CARNARVON	79.1	81.7	-2.6	50.9	51.4	-0.5	65.0	66.6	-1.6	92.0	26	41.0	1
CERES	82.4	77.9	+4.5	53.1	50.4	+2.7	67.8	64.2	+3.6	96.0	25	40.0	9
CRADOCK	75.5	83.0	-7.5	51.9	51.4	+0.5	63.7	67.2	-3.5	92.0	2	43.0	24,30
CLANWILLIAM	89.7	84.6	+5.1	57.1	53.2	+3.9	73.4	68.9	+4.5	104.0	25	44.0	8
DEEPWALLS	65.8	70.3	-4.5	51.5	51.9	-0.4	58.7	61.1	-2.4	91.2	25	45.4	8
EAST LONDON	70.2	72.6	-2.4	58.1	59.8	-1.7	64.2	66.2	-2.0	76.0	22	51.5	30
GOODHOUSE	92.9	94.1	-1.2	63.7	64.3	-0.6	78.3	79.2	-0.9	106.0	25	53.0	11
GRAAFF REINET	75.3	83.1	-7.8	50.9	53.5	-2.6	63.1	68.3	+5.2	96.8	25	47.0	24
GRAHAMSTOWN	67.1	75.4	-8.3	50.9	51.1	-0.2	59.0	63.3	-4.3	89.6	25	41.0	30
GROOT DRAKENSTEIN	77.9	77.6	+0.3	56.5	53.9	+2.6	67.2	65.8	+1.4	93.5	30	41.8	4
GROOTFONTEIN	73.3	80.2	-6.9	46.9	49.0	-2.1	60.1	64.6	-4.5	89.2	4	35.3	9
IDUTYWA	68.6	74.3	-5.7	50.8	52.7	-1.9	59.7	63.5	-3.8	91.0	1	45.1	24
KENHARDT	87.0	89.4	-2.4	60.9	56.2	+4.7	74.0	72.8	+1.2	98.0	4	49.6	12
LIMBERLEY	83.2	86.0	-2.8	57.1	56.8	+0.3	70.2	71.4	-1.2	95.9	4	48.9	21
KINGWILLIAMSTOWN	72.0	78.7	-6.7	54.6	55.2	-0.6	63.3	67.0	-3.7	91.0	25	49.0	9,24
KLAVER	81.2	84.3	-3.1	57.7	56.3	+1.4	69.5	70.3	-0.8	98.9	30	46.5	8
KOKSTAD	68.8	74.6	-5.8	51.2	50.1	+1.1	60.0	62.4	-2.4	86.0	1	45.0	25
KURUMAN						57.1		71.8					
LAINGSBURG	77.9	(84.3)(-6.4)	53.2	(55.9)(-2.7)			65.6	(70.1)(-4.5)		95.5	25	42.6	12
MAFEKING	82.9	85.9	-3.0	58.4	58.4	+0.0	70.7	72.2	-1.5	95.8	5	45.0	1
MOSSEL BAY	67.9	70.7	-2.8	57.7	57.7	+0.0	62.8	64.2	-1.4	75.0	25	50.0	8
MOUNT FLETCHER	-	75.8	-	-	48.2	-	-	62.0	-	-	-	-	-
NELSPoORT	71.7	82.5	-10.8	50.6	52.4	-1.8	61.2	67.5	-6.3	89.0	25	42.5	30
O'OKIEP	76.9	79.4	-2.5	51.8	52.5	-0.7	64.4	66.0	-1.6	92.6	30	43.1	11
OUDTSHOORN	78.3	82.8	-4.5	52.8	51.8	+1.0	65.6	67.3	-1.7	99.0	25	43.0	9
PORT ELIZABETH	68.9	70.9	-2.0	57.8	58.3	-0.5	63.4	64.6	-1.2	77.0	4	51.0	8,9
PORT NOLLOTH	65.8	65.6	+0.2	52.6	50.4	+2.2	59.2	58.0	+1.2	103.5	30	44.0	9
PORT ST. JOHNS	70.6	75.7	-5.1	60.9	61.4	-0.5	65.8	68.6	-2.8	74.0	28	55.0	9
POSTMASBURG	84.7	84.2	+0.5	57.8	57.5	+0.3	71.3	70.9	+0.4	96.1	4	51.0	13
PRIESKA	83.0	87.4	-4.4	56.5	58.8	-2.3	69.8	73.1	-3.3	95.0	4	49.0	12
QUEENSTOWN	72.4	80.5	-8.1	50.7	52.2	-1.5	61.6	66.4	-4.8	92.0	4.6	44.0	9,24
RIETPOORT	-	82.9	-	-	54.9	-	-	68.9	-	-	-	-	-
SOMERSET EAST	70.6	78.4	-7.8	52.2	51.9	+0.3	61.4	65.2	-3.8	90.6	25	41.6	30
SUTHERLAND	70.3	75.2	-4.9	44.6	42.6	+2.0	57.5	58.9	-1.4	84.0	26	36.0	8
SYDNEY'S HOPE	68.8	73.3	-4.5	52.5	52.8	-0.3	60.7	63.1	-2.4	90.0	25	45.0	30
UITENHAGE	72.5	78.2	-5.7	56.1	55.1	+1.0	64.3	66.7	-2.4	92.0	25	45.8	30
UMTATA	71.8	77.0	-5.2	53.6	54.8	-1.2	62.7	65.9	-3.2	94.0	26	48.0	8/9
UPINGTON	88.8	90.2	-1.4	60.8	60.5	+0.3	74.8	75.4	-0.6	101.0	4	51.7	12
VAN WYKSVLEI	82.8	86.8	-4.0	56.3	54.1	+2.2	69.6	70.5	-0.9	96.0	4	49.0	1
VICTORIA WEST	-	81.2	-	-	50.3	-	-	65.8	-	-	-	-	-
VRYBURG	87.8	87.2	+0.6	58.7	57.1	+1.6	73.3	72.2	+1.1	101.0	5	46.0	13
WILLOWMORE	76.9	80.0	-3.1	48.2	50.3	-2.1	62.6	65.2	-2.6	91.3	25	34.1	11
<u>TRANSVAAL</u>													
BARBERTON	77.4	80.6	-3.2	60.5	61.0	-0.5	69.0	70.8	-1.8	94.0	23	55.2	19
BELFAST	68.9	73.1	-4.2	47.6	47.6	+0.0	58.3	60.4	-2.1	84.0	5	37.0	1
CHRISTIANA	87.6	86.5	+1.1	54.1	55.7	-1.6	70.9	71.1	-0.2	100.0	5	46.0	21,24
ERMELO	73.3	75.6	-2.3	49.4	50.8	-1.4	61.4	63.2	-1.8	87.0	5,6	43.0	19
HEIDELBERG	76.5	80.1	-3.6	52.2	53.5	-1.3	64.4	66.8	-2.4	92.0	5	43.0	1
JOHANNESBURG	72.6	74.4	-1.8	52.8	53.5	-0.7	62.7	64.0	-1.3	86.2	4	44.8	21
KLERKEDORP	80.5	85.6	-5.1	56.4	56.7	-0.3	68.5	71.2	-2.7	95.0	4	46.5	19
KOMATIPOORT	83.4	89.9	-6.5	64.6	66.3	-1.7	74.0	78.1	-4.1	99.0	7	58.0	25
KOPJE ALLEEN	83.7	85.9	-2.2	58.9	60.0	-1.1	71.3	73.0	-1.7	97.9	7	53.2	19
LOUIS TRICHARDT	77.9	81.1	-3.2	60.1	59.7	+0.4	69.0	70.4	-1.4	95.0	5,7	52.0	30
MARKEN	84.1	83.2	+0.9	61.9	62.0	-0.1	73.0	72.6	+0.4	98.7	8	45.8	19
MESSINA	87.2	90.0	-2.8	67.6	66.6	+1.0	77.4	78.3	-0.9	102.0	7	61.0	20
MIDDLEDURG	75.9	79.7	-3.8	52.5	53.3	-0.8	64.2	66.5	-2.3	91.0	5	44.0	1
NYLSTROOM	83.2	83.5	-0.3	57.2	58.1	-0.9	70.2	70.8	-0.6	96.0	7/8	52.0	20
PIETERSBURG	77.1	81.1	-4.0	57.5	57.3	+0.2	67.3	69.2	-1.9	92.0	5	48.0	19
PIET RETIEF	73.3	76.0	-2.7	54.1	54.8	-0.7	63.7	65.4	-1.7	92.0	5	47.0	19
PILGRIMS REST	74.8	77.8	-3.0	54.4	54.7	-0.3	64.6	66.3	-1.7	92.0	5	47.0	30
POTCHEFSTAD	80.1	82.4	-2.2	55.0	54.4	-1.6	68.1	68.0	-0.9	94.0	-	44.0	-

AIR TEMPERATURES, NOVEMBER 1936.  
(CONTD.)

STATION	MAXIMUM. MEAN NORMAL DIFF.			MINIMUM. MEAN NORMAL DIFF.			MONTHLY MEAN. MEAN NORMAL DIFF.			ABS. MAX.	DATE	ABS. MIN.	DATE
<u>TRANSVAAL. (Continued).</u>													
PRETORIA	79.5	82.3	-2.7	57.0	58.2	-1.2	68.3	70.2	-1.9	92.5	5	51.6	21
RUSTENBURG	83.1	85.9	-2.8	57.8	58.4	-0.6	70.5	72.2	-1.7	96.0	5,7	49.0	23
STANDERTON	75.8	78.0	-2.8	50.3	51.2	-0.9	63.1	64.9	-1.8	91.0	5	42.0	2
WAKKERSTROOM	69.9	73.0	-3.1	48.2	49.9	-1.7	59.1	61.5	-2.4	86.3	5	38.7	2
ZEERUST	34.2	85.0	-0.8	58.0	57.8	+0.2	71.1	71.4	-0.3	99.5	29	42.8	1
<u>NATAL.</u>													
DUNDEE	74.8	79.6	-4.8	53.5	54.3	-0.8	64.2	67.0	-2.8	95.0	5	45.0	19
DURBAN POINT	73.5	77.2	-3.7	64.3	65.5	-1.2	68.9	71.4	-2.5	82.8	22	58.8	9
LIMPANGTONI	78.3	82.8	-4.5	62.4	63.4	-1.0	70.4	73.1	-2.7	92.0	7	53.0	25
ESHOEVE	73.3	76.3	-3.0	58.5	59.7	-1.2	65.9	68.0	-2.1	89.7	1	51.3	25
ESTCOURT	74.0	79.1	-5.1	53.6	55.2	-1.6	63.8	67.2	-3.4	93.0	5,6	43.0	9
LADYSMITH	77.6	84.2	-6.6	54.1	57.7	-3.6	65.9	71.0	-5.1	97.0	5	42.0	8
MARITZBURG	73.7	78.5	-4.8	56.7	58.3	-1.6	65.2	68.4	-3.2	90.1	1	50.8	10
OTOBOTINI	81.2	86.3	-5.1	64.8	68.7	-3.9	73.0	77.5	-4.5	101.0	7	60.0	26
PORT SHIPSTONE	72.0	75.6	-3.6	62.5	63.5	-1.0	67.3	69.6	-2.3	78.0	21	56.0	9
STANGER	77.0	80.4	-3.4	62.6	63.5	-0.9	69.8	72.0	-2.2	88.0	1	57.0	9
VERYHEID	75.3	78.9	-3.6	54.2	55.7	-1.5	64.8	67.3	-2.5	92.0	5	48.0	19
WEENEN	77.4	86.3	-8.9	56.3	56.5	-0.2	66.9	71.4	-4.5	99.0	5	50.0	19
<u>ORANGE FREE STATE.</u>													
BETHULIE	77.9	82.3	-4.4	50.8	52.3	-1.5	64.4	67.3	-2.9	92.3	4	42.3	30
BLOEMFONTEIN	77.7	82.5	-4.8	51.1	53.8	-2.7	64.4	68.2	-3.8	90.2	5,6	41.4	13
FAURESMITH	77.5	80.0	-2.5	50.5	53.7	-3.2	64.0	66.9	-2.9	90.0	4	42.5	24
HARRISMITH	68.6	72.2	-3.6	46.6	49.1	-2.5	57.6	60.7	-3.1	85.0	5	35.0	1
KROONSTAD	78.9	82.1	-3.2	53.0	54.2	-1.2	66.0	68.2	-2.2	93.0	5	42.0	1
LADYBRAND	74.9	76.8	-1.9	-	51.3	-	-	64.1	-	90.0	5	-	-
LINDLEY	75.4	80.3	-4.9	50.7	51.7	-1.0	63.1	66.0	-2.9	91.0	5	41.0	2
WEPENER	76.4	80.2	-3.8	50.5	51.4	-0.9	63.5	65.8	-2.3	90.0	5	41.0	24
<u>BASUTOLAND.</u>													
BUTHE BUTHE	72.9	78.8	-5.9	49.9	50.3	-0.4	61.4	64.6	-3.2	88.0	6	43.0	30
MAFETENG	73.3	76.0	-2.7	51.4	51.7	-0.3	62.4	63.9	-1.5	87.0	5	44.0	24
MOHALIS HOEK	74.2	80.1	-5.9	47.2	51.1	-3.9	60.7	65.6	-4.9	88.0	6,7	41.0	16,22
MOKHOTLONG	68.3	71.6	-3.3	43.6	45.6	-2.0	56.0	58.6	-2.6	81.0	5	35.0	11
CACHAS NEK	64.8	71.3	-6.5	45.7	46.8	-1.1	55.3	59.1	-3.8	82.0	5,6	40.0	9,17
<u>BECHUANALAND.</u>													
DIKGATLONG	88.2	90.1	-1.9	64.0	64.5	-0.5	76.1	77.3	-1.2	106.5	8	58.0	19
GABERONES	87.6	89.6	-2.0	60.5	60.6	-0.1	74.1	75.1	-1.0	101.0	7	49.0	2
MAHALAPYE	85.7	89.2	-3.5	63.3	64.1	-0.8	74.5	76.7	-2.2	102.0	8	58.0	19
<u>SWAZILAND.</u>													
MBABANE	72.9	79.8	-6.9	-	59.9	-	-	69.9	-	87.0	28/29	-	-
STEGI	72.0	78.8	-6.8	58.0	58.7	-0.7	65.0	68.8	-3.8	92.0	8	50.0	25

# WEERKAART — WEATHER MAP



## C H A R .

NOVEMBER, 1936: MEAN ATMOSPHERIC PRESSURE AT 0800 a.m.

The broken lines indicate the normal distribution in November.

## **WEERKAART — WEATHER MAP**

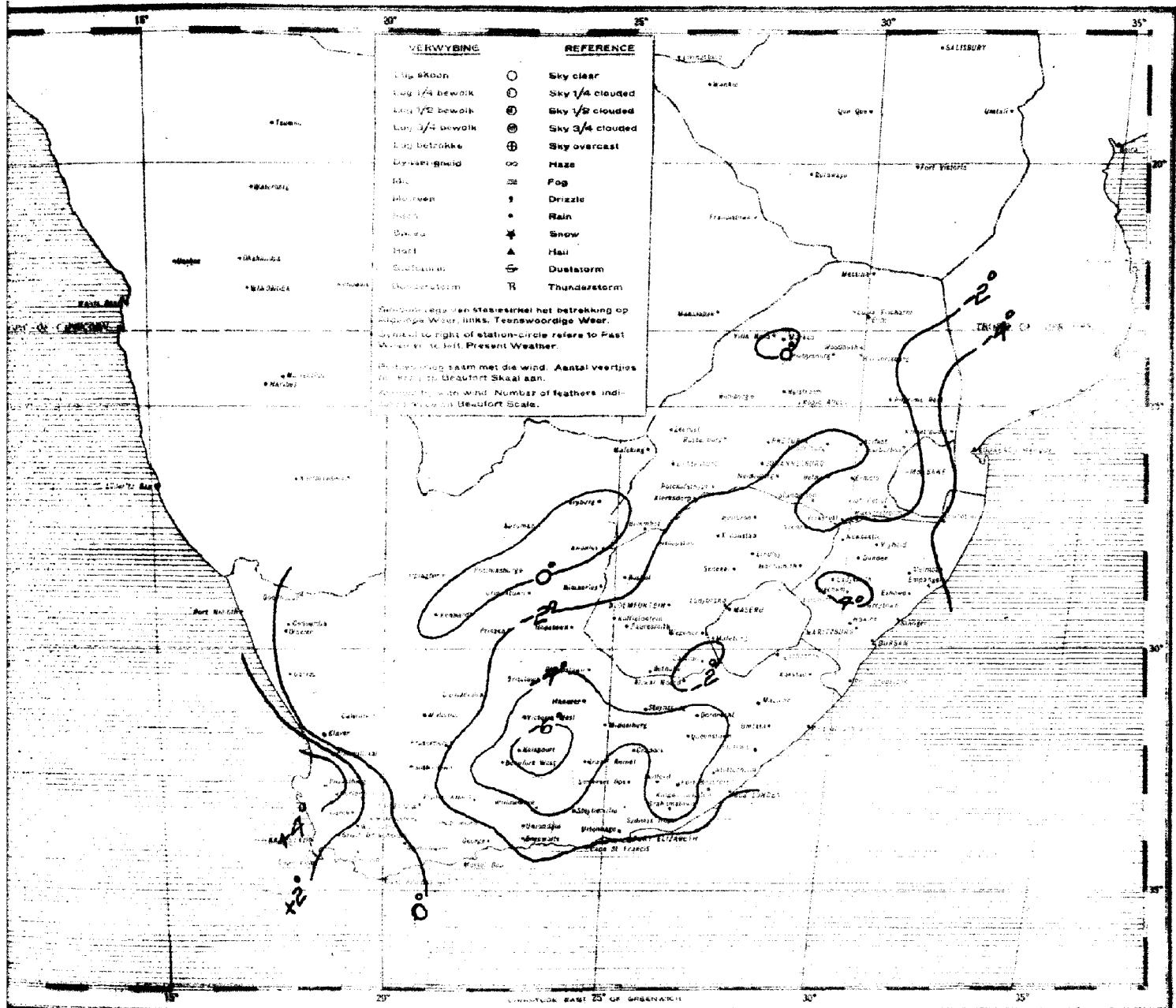
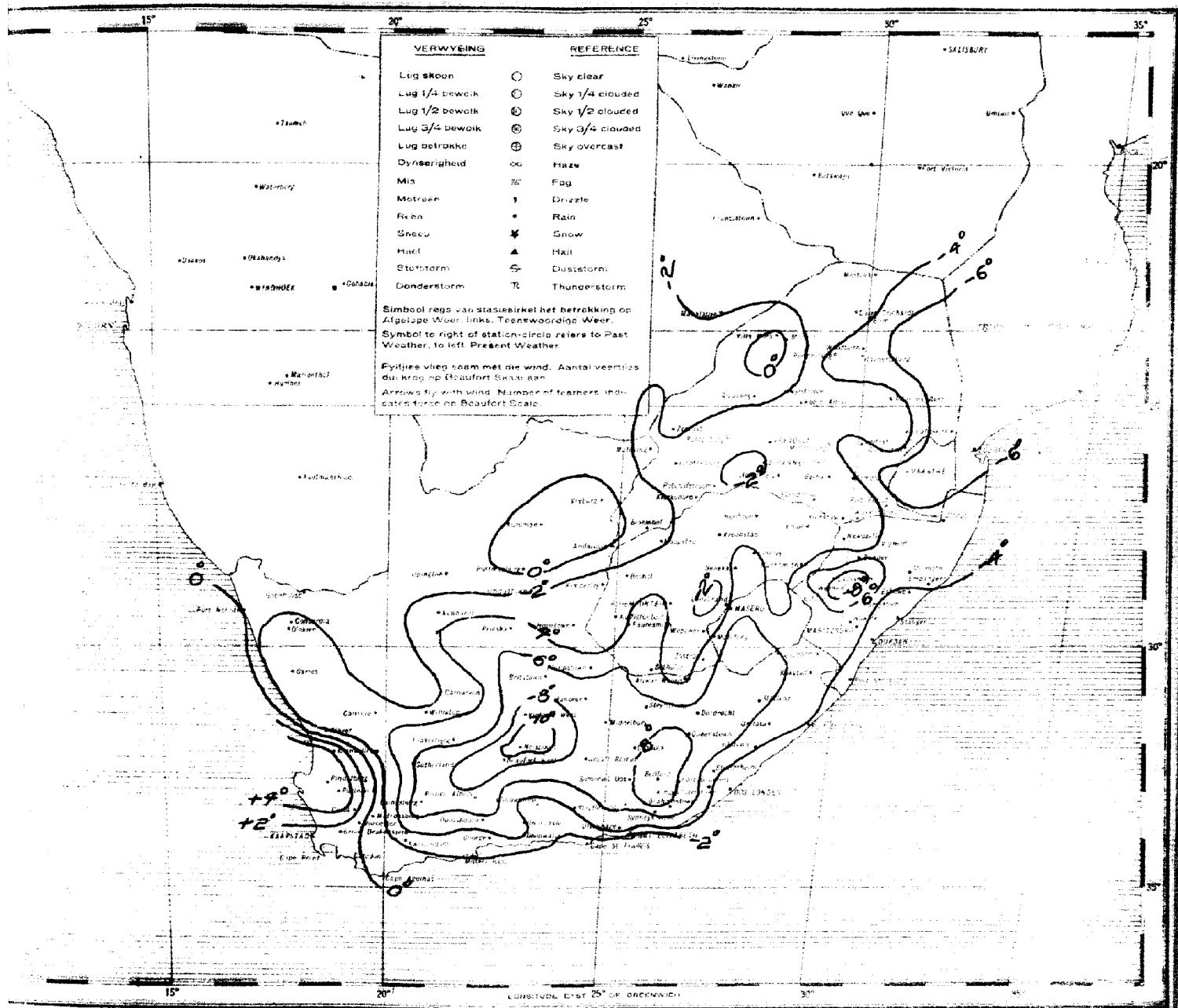


CHART II.

NOVEMBER, 1936:- Deviations (in  $^{\circ}$ F.) of Mean Temperature from normal.

# WEERKAART — WEATHER MAP



## CHART III.

NOVEMBER, 1936:- Deviation (in<sup>0</sup>F.) of Mean Maximum Temperatures from normal.

## WEERKAART — WEATHER MAP

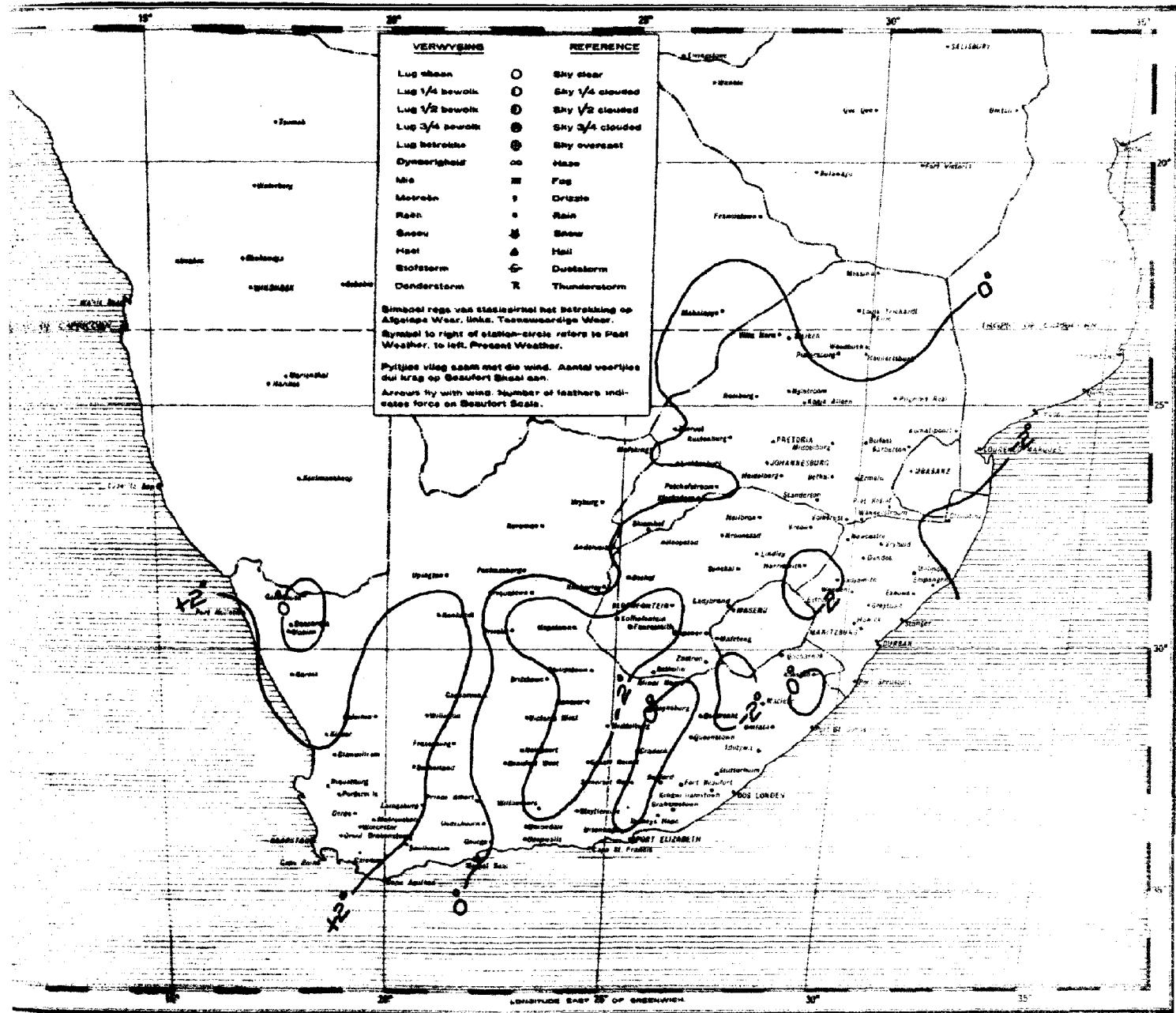
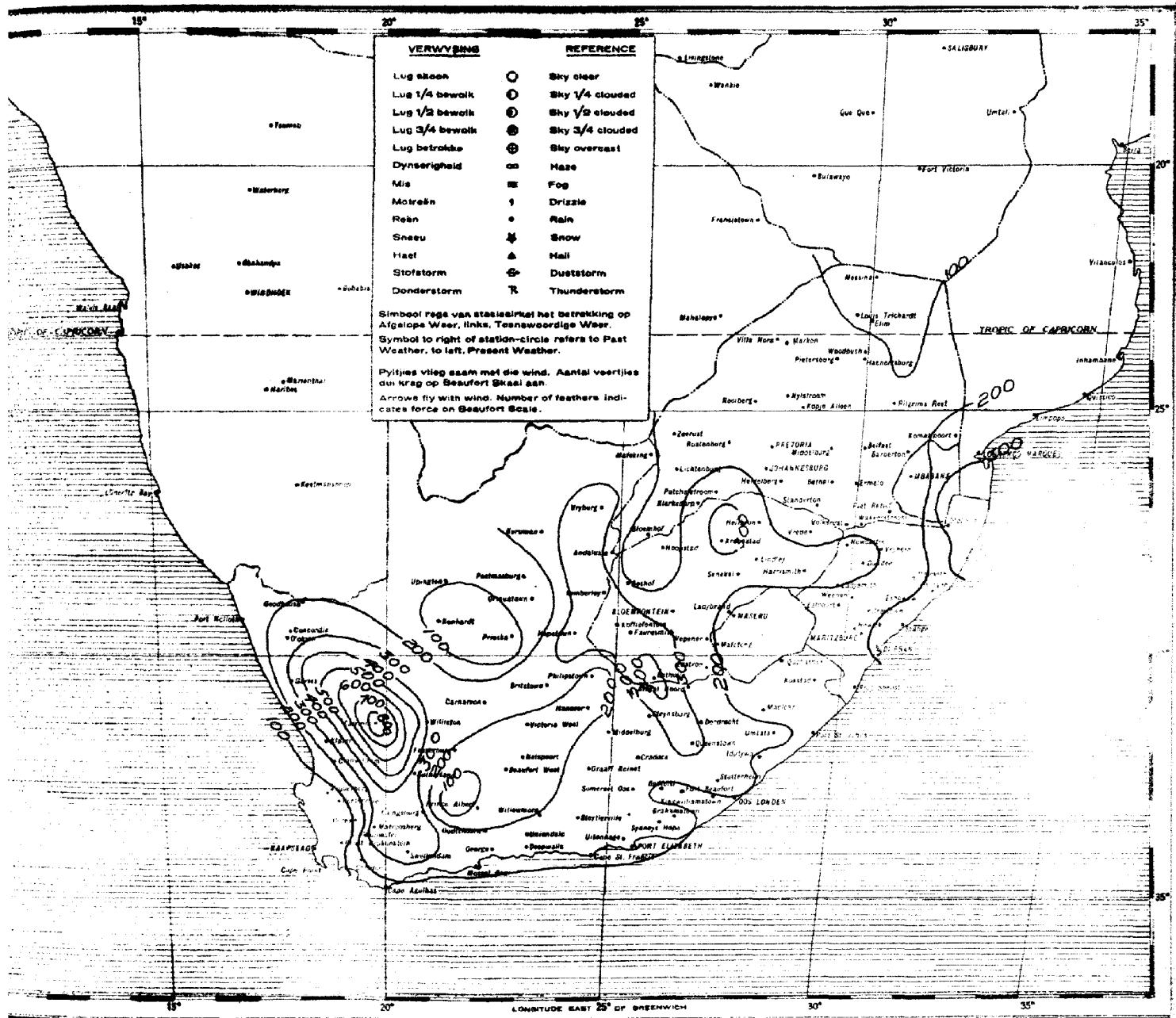


CHART IV.

NOVEMBER, 1936:— Deviations (in °F.) of Mean Minimum Temperatures from normal.

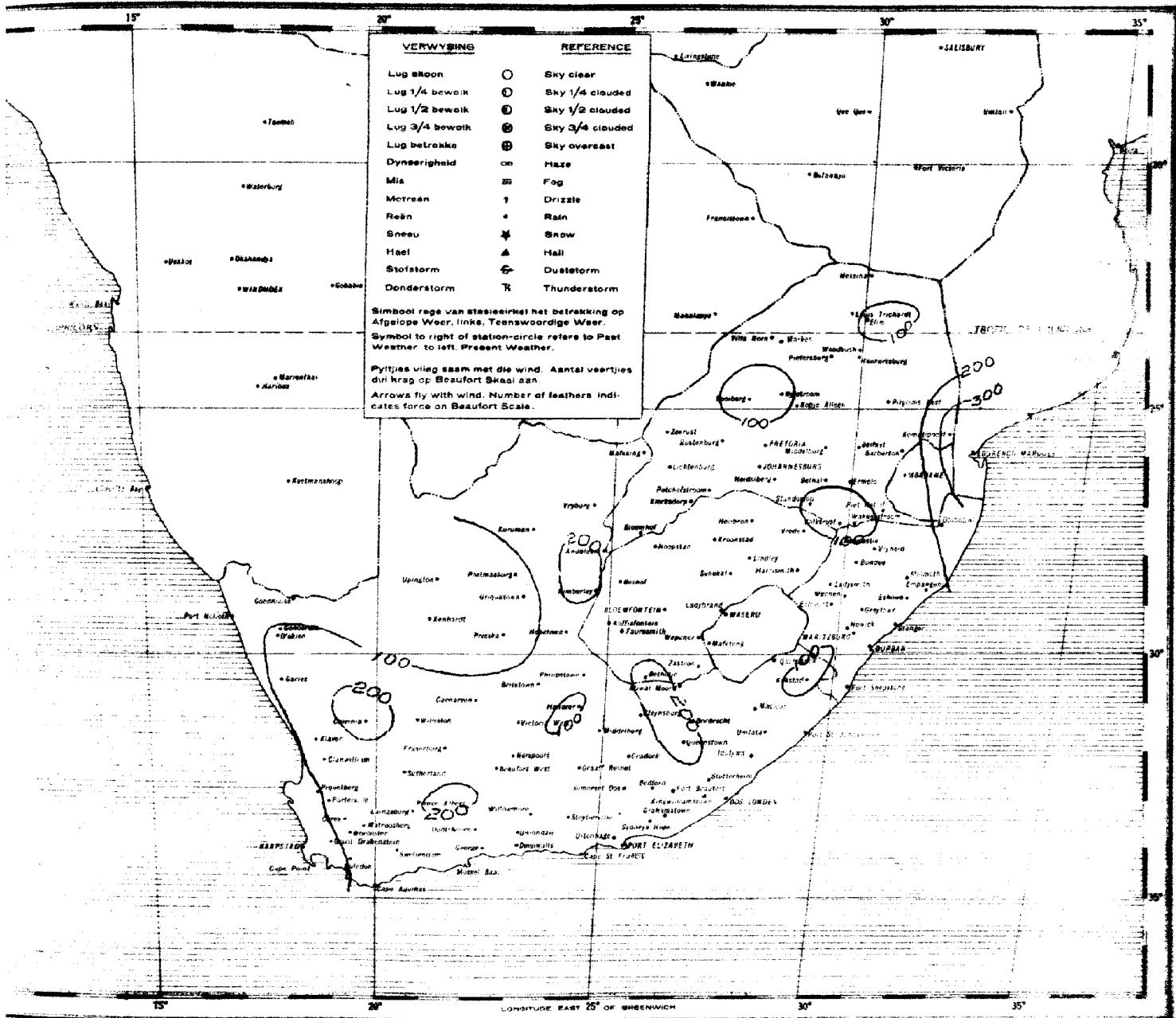
# WEERKAART — WEATHER MAP



C H A R T V.

NOVEMBER 1936 — RAINFALL AS PERCENTAGE OF MONTHLY NORMAL.

# WEERKAART — WEATHER MAP



## CHART VI.

NOVEMBER, 1936: SEASONAL PRECIPITATION (1st July to 30th November),  
shown as percentage of normal.

## UNION OF SOUTH AFRICA

## DEPARTMENT OF IRRIGATION

MONTHLY WEATHER REPORT  
OF THE  
METEOROLOGICAL OFFICE

VOL. XVII

DECEMBER 1936

NO. 12.

## A DRY MONTH WITH FREQUENT WARM SPELLS.

GENERAL: Mean pressure about normal; mean temperatures practically the same as usual, but with frequent hot spells; precipitation well below normal over the summer rainfall area and much above normal over the winter rainfall area; several destructive hailstorms, hot drying winds, these were the principal features of the weather of December 1936.

PRESSURE: The mean sea level pressure for December as may be seen from Chart I was practically normal over the whole Union. The equatorial low pressure was strongly in evidence throughout the month, at times reaching to the south, southeast or east coasts.

Coastal lows appeared on the 2nd to 3rd, 6th to 7th, 11th to 13th, 17th, 22nd and 27th whilst anticyclones passed along the coast on the 1st to 2nd, 8th to 10th, 17th to 19th, 28th and 30th to 31st.

TEMPERATURE: As gathered from a number of representative stations, the mean temperature over the Union as a whole was  $70.9^{\circ}\text{F}$ . or  $0.1^{\circ}$  below normal. Regarding the provinces as units, the mean temperature was above normal over the Transvaal by  $0.5^{\circ}$  and over Natal by  $0.2^{\circ}$  and below normal over the Cape Province by  $0.5^{\circ}$  and over the Free State by  $0.6^{\circ}$ . The distribution of departures from the normal temperatures showed positive values over the Transvaal, the extreme northern Free State, the interior of Natal, the eastern interior of the Cape Province and along the west coast. Over the remainder of the Union the departures were mainly negative. Both the positive and the negative departures were mostly about  $1^{\circ}\text{F}$ , reaching  $2^{\circ}\text{F}$  only over a few isolated areas.

As regards the mean maxima (or day temperatures), these were above normal over the Transvaal, the northern Free State, the interior of Natal, the eastern interior of the Cape Province and over a small area in the southwestern Cape, otherwise they were below normal. Considering the provinces as units, mean maxima were above normal over the Transvaal by  $1.1^{\circ}\text{F}$ , and over Natal by  $0.1^{\circ}$ , whilst they were below normal over the Cape Province by  $0.5^{\circ}$  and over the Free State by  $0.4^{\circ}\text{F}$ , giving for the Union as a whole a general mean maximum of  $83.3^{\circ}\text{F}$ , which equals the normal for this month. The highest maxima registered in the different provinces were  $111.0^{\circ}$  at Goodhouse (C.P.) on the 20th;  $106.4^{\circ}$  at Messina (Tvl.) on the 7th;  $101.0^{\circ}$  at Empangeni (Natal) on the 13th, and  $97.1^{\circ}$  at Bethulie (O.F.S.) on the 21st.

Mean minima were above normal over the central and northern Transvaal, Natal, the eastern interior of the Cape Province and over the southwestern Cape; otherwise they were mainly below normal. Considering the provinces as units, mean minima were above normal over Natal by  $0.3^{\circ}$ , whilst they were below normal over the Cape Province by  $0.3^{\circ}$ , over the Transvaal by  $0.1^{\circ}$  and over the Free State by  $0.7^{\circ}\text{F}$ , resulting for the Union as a whole in a general mean minimum of  $52.5^{\circ}\text{F}$ , which is  $0.2^{\circ}$  below the normal for this month. The lowest minima recorded were  $31.0^{\circ}\text{F}$  at Sutherland (C.P.) on the 8th;  $36.0^{\circ}$  at Belfast (Tvl.) on the 3rd;  $48.0$  at Dundee (Natal) on the 2nd, and  $38.8^{\circ}$  at Bloemfontein (O.F.S.) on the 9th.

FROST: Light frost occurred over the interior of the western Cape Province during the first week of the month.

Precipitation: The rainfall for December was well above normal over the western and southwestern

Cape Province as far east as Upington, Kenhardt, Fraserburg, Beaufortwest, Graaff Reinet and Steytlerville, amounting in some districts to 6 or 7 times the normal amounts. Further the rainfall was slightly above normal over (1) the central and southeastern portions of the Free State; (2) an area in Natal (including Ladysmith and Weenen); (3) two isolated areas in the Transvaal (one around Middelburg and another around Messina); and (4) over small isolated areas in the Cape Province (one including Kimberley, one including Aliwal North, another around Port St. Johns and another including Grahamstown). Over the remainder of the Union the rainfall was well below normal, especially over the greater part of the western half of the Transvaal, the northern Free State, the greater part of Natal, the northern borders of the Cape Province and the eastern Cape Province, where it was less than half the normal for this month.

Considering the Provinces as units, all four provinces showed deficits, amounting for the Cape Province to 8%, for the Free State to 27%, for Natal to 44% and for the Transvaal to 36% of their respective normals for the month, giving for the Union as a whole a deficit of 27%.

In the Cape Province, the winter rainfall area considered as a unit showed a surplus of as much as 200%, as against a deficit of 24% for the summer rainfall area.

On the 2nd and 3rd of this month the winter rainfall area had exceptionally heavy rains, unusual for this time of the year, and in the west accompanied by hail. This was the only spell of rainy weather this area had during this month. Three spells of rainy weather affected the summer rainfall area, viz: (1) from the 3rd to the 4th when heavy rains fell over the eastern half of the Cape Province, the southern Free State, Natal and the southeastern Transvaal. During this spell the remainder of the Transvaal and the northern Free State had no rain; (2) from the 10th to the 16th, when heavy rains fell over the southern Free State, southern Natal, and the northern half of the Transvaal. During this spell the central Cape Province and the northern borders of the Cape had very little rain; (3) from the 26th to the 30th when heavy rains affected the southeastern and central Cape Province, Natal and Transvaal.

THUNDERSTORMS AND HAIL: Thunderstorms were again of regular occurrence during the rainy spells and in some districts caused loss of life to natives and livestock. Hailstorms affected the northwestern and southwestern Cape, the southern Free State and the adjoining district of the Cape Province (extending as far south as Queenstown and Graaff Reinet), the interior of Natal and the central and southeastern Transvaal.

SNOW was seen on the mountains in the district of Worcester on the 7th and 8th.

THE CUMULATIVE PRECIPITATION for the period 1st January to 31st December, 1936 was above normal over the eastern half of the Union, excepting the following areas where it was slightly below normal, viz :- (1) in the Transvaal, the northwestern portion, an area around Bloemhof and an area including Ermelo and Belfast; (2) in the Free State an area around Harrismith; (3) in Natal an area around Melmoth, and (4) in the eastern half of the Cape Province an area including Kokstad and Maclear, and a narrow strip of country along the southeastern coast. Over the remainder of the Union the cumulative precipitation was below normal excepting an area including Garies, Calvinia, Carnarvon, Sutherland, and extending southwards to the coast. Regarding the provinces as units, the Free State, Natal and the Transvaal showed surpluses amounting to 16%, 17% and 11% of the respective normals, whilst the cumulative rainfall over the Cape Province was just normal, resulting in surplus of 8% for the Union as a whole.

THE SEASONAL RAINFALL for the period 1st July to 31st December, 1936, was below normal over the western half and the southeast of the Transvaal, the centre of Natal, the extreme northeast of the Free State and in the Cape Province over (1) an area including Kokstad and Maclear, (2) a small area around East London, (3) an area in the southwestern Cape including Cape Town, Piquetberg and Groot Drakenstein, and (4) over an area in the central Cape Province including Kenhardt, Griquatown, Prieska, Britstown, Philipstown and Hanover. Over the remainder of the Union the seasonal precipitation was above normal. Separately the four provinces all showed surpluses, amounting to 21% for the Cape Province, 26% for the Free State, 2% for Natal and 2% for the Transvaal, giving a surplus of 13% for the Union as a whole.

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OBSEVERS' NOTES FOR DECEMBER 1936.

DALEMONT - 30th - 3.25 inches in half an hour. Crops all knocked flat but not washed away. All roads washed away. 5.37 inches on 5 days. - T. Mathews.

BELMONT (VRYBURG) - Rain badly needed. 0.51 inches on 1 day. - B. Hodgman.

BEAKS RUST (MAFEKING) - Numerous swarms of locusts - crops eaten - heavy hatchings expected. 0.71 inches on 6 days. - Z.O. Webber.

SENAGOLI (LAFFRING) - 25th. Lightning not severe but struck three huts in three flashes killing 2 natives and incapitating another. 1.07 inches on 6 days. - S.A. Police.

DRIELAAGTE (RUSTENBURG) - Terribly dry country all burned up. 1.26 inches on 5 days. H. Hardwick.

FOLKSTONE (WATERBERG) - 23rd. Heavy hail - crops damaged, trees stripped of leaves. 3.01 inches on 5 days. - G. Fitzgerald.

TILLAWARA (WATERBERG) - 24th. Very hot, crops and grass withering. 3.86 inches on 4 days. J.A. Manson.

GROENFONTEIN TIN MINE (WATERBERG) - The prospects are not as good as last month. We are getting just sufficient rain to keep the grass going. There is very little water in dams and crops are wilting. 2.99 inches on 9 days. - T. Haldane.

HOOIGLEGEN (WATERBERG) - Veld good, weeds heavy growth - planting behind hand. Locusts laying. 3.51 inches on 6 days. - W. Maddock.

MARIEPSKOP - 12th. Thunderstorm started 12 midnight and lasted till day break. Roads washed away badly. 5.50 inches fell. 12.76 inches on 10 days. - J. Rossouw.

MASILIBITCANI - 22nd. The heat lately has been almost unbearable and certainly much more so than any previous year. There is no sign of rain and I am afraid that the crops will be a total failure - many natives have not yet ploughed or sown. Likewise the European farmers. The rains that have fallen were merely local storms limited to individual farms and reserves. J. Bissett.

CARNARVON - Baie droog, warm en winderig. - C. Crafford.

QUEENSTOWN - Several very hot windy days towards end of month. - W. Everitt.

QUELHOE - Dry spell towards end of month caused vegetation to wither. There were some destructive hailstorms in some parts of District. - R.N. Marriellier.

KOEPJE ALLEEN - Two spells of very hot days - 4th to 8th incl. and 20th to 28th incl. L. Soutter.

MIDDELBURG TVL. - In certain portions of district crops have been destroyed by hailstorms. Several dams damaged. - V.P. Rose.

POORTJEWYDROUW - (AGRICULTURAL SCHOOL) Extremely high maximum temperatures, low rainfall, cloudless days. An uncommon feature at times was rain with high atmospheric pressure. The Principal.

STEADERTON - Excessive heat evident during the month. - The Magistrate.

LADYSMITH - On 30th 2.47 inches rain fell in about three quarters of an hour; accompanied by hail. - The District Engineer (S. A. R.).

PORT SHEPOTONE - Dull and gloomy, abnormal amount of wind for this season of year. Lightkeeper.

PAURESMITH - Hot and unsettled towards end of month. - Officer in charge (Veld Reserve Station).

MINDLEY - Considered a dry month and rain is badly needed. - The Gaoler.

NIKGATLONG - Month has been very dry. - Paul Jousse.

KRUGERSDORP - December has been a fine but rather dry month. 2.22 inches on 10 days. H. Sharp.

RIETVLEI - Very dry and hot month. Scorching weather. 2.09 inches on 7 days. - P. Steenkamp.

PRETORIA - Ofcalaco E. Transvaal. Misty, cloudy morning, clouds generally breaking before noon, afternoons very hot. Hailstorm on 17th most severe in 14 years - considerable damage to fruit trees. - R. Bendall.

HLAMBANYATI - On 4th December lightning struck rondavel which took fire. Native killed and body incinerated.

CHAMPAGNE - The heat during the month was very trying owing to its quality than the actual figures reflected.

KROONSTAD CEREAL - Desember was besonder droog. (Reenval 1.97 duim op 7 dae). Die gesaaides het oor die algemeen goeie vordering gemaak. Daar was baie klagtes oor vernieling deur waai. D.J. van den Berg.

MISTLEY - Mist and drizzle frequent. 2.54 inches on 15 days. - H. Fisher.

WILLISTON - Bright and hot days - practically no clouds. Wind increasing in force during day. - J. Swart.

RHODES - Frequent hailstorms. 3.90 inches on 10 days. - S. van der Merwe.

SANDFLATS - Days generally cloudy with prevailing wind easterly. - H. Corderoy.

PARADYS - A spell of hot, dry winds followed frequent slight rains. 2.66 inches on 11 days. Government Forester.

HERMITAGE - Except for a good rain at beginning of the month it was dry and warm. 1.57 inches on 4 days. - The Research Officer.

WORCESTER - 7e en 8e Desember sneeu op berge.

INA - (SENEKAL) - Wolkbreuk op die 12 de. 2.50 duim reen in tien minute. 5.65 duim op 8 dae.

BERGVIEW - Hailstorm and cyclone on the 28th. Trees uprooted and also crops. Damage of over £200 done to crops. Hail on 31st lasting 30 minutes. 4.69 inches on 8 days.

VLAKSUITRUIT (STANDERTON) - A number of sheep and cattle were struck by lightning. 5.75 inches on 9 days. - S.E. Dell.

LANDMETERSDRAAI (DUNDEE) - Storm on the 26th. One native hut struck by lightning and burnt to ground. 2.41 inches on 7 days. E. Prinsloo.

LOT 29 (HLABISA) - 1.96 inches fell in 20 minutes on 27th. 3.02 on 6 days. - I. Robertson.

LEKKERPLAAT (COLESBURG) - Hael doen baie skade - 10de. 0.41 duim op 2 dae. - J.A. du Toit.

INVERGWATI (STUTTERHEIM) - 16th Hail storm. Severe damage to crops. Hail the size of large pigeon eggs - 6 inches deep. 2.46 inches on 8 days. - A. Edwards.

SWARTVLEI (WORCESTER) - 7de Hael. Baie skade aan vrugte en wingerde. 4.06 duim op 5 dae.

J. v.d. Merwe.

EMOYENI (PORT SHEPSTONE) - 4th Thunderstorm all night probably cloud burst. Rain measured 6.06 inches on 4th. 8.79 inches on 12 days. - H. Barker.

## RAINFALL, DECEMBER 1936.

STATION	DEC. 1936	NORMAL	DIFF.	%	FROM 1/1/36	NORMAL	DIFF.	FROM 1/7/36	NORMAL	DIFF.	SEASON- AL %.
<u>ORANGE FREE STATE.</u>											
BETHULIE	1.15	2.20	-1.05	52	18.89	18.54	+0.35	12.21	6.37	+5.84	192
BLOEMFONTEIN	2.62	2.25	+0.37	116	23.35	20.77	+2.58	9.27	7.48	+1.79	124
BOSHOE	2.58	2.09	+0.49	123	21.42	18.27	+3.15	8.93	6.82	+2.11	131
FAURESMITH	1.36	1.80	-0.44	76	17.43	14.53	+2.90	9.91	6.52	+3.39	152
HARRISMITH	2.25	4.46	-2.21	50	25.82	29.40	-3.58	14.67	14.30	+0.37	102
KROONSTAD	1.36	3.74	-2.38	36	30.10	23.28	+6.82	13.58	10.78	+2.80	126
LADYBIRD	4.72	3.57	+1.15	132	28.94	27.42	+1.52	15.88	12.09	+3.79	131
LINDLEY	3.85	3.77	+0.08	102	33.06	24.73	+8.33	15.69	11.08	+4.61	142
VREDE	1.06	4.37	-3.31	24	32.39	27.29	+5.10	11.70	13.56	-1.86	86
WINBURG	1.65	2.69	-1.04	61	24.43	21.89	+2.54	11.62	8.97	+2.65	130
<u>NATAL.</u>											
DUNDEE	1.71	5.24	-3.53	33	44.23	32.05	+12.18	15.43	14.98	+0.45	103
DURBAN	2.48	5.16	-2.68	48	50.84	45.08	+11.76	21.65	21.18	+0.47	102
EMPANGENI	0.84	4.37	-3.53	19	52.99	42.02	+10.97	20.38	19.30	+1.08	105
ESTCOURT	4.46	4.66	-0.20	96	34.12	28.84	+5.28	13.55	12.77	+0.78	106
LADYSMITH	5.20	4.81	+0.39	108	36.12	29.84	+6.28	15.98	13.45	+2.53	119
MELMOTH	1.96	4.57	-2.61	43	30.28	31.47	-1.19	12.85	14.87	-2.02	86
OTOBOTINI	0.83	3.39	-2.56	24	32.09	22.96	+9.13	14.50	9.92	+4.58	146
PIETERMARITZBURG	2.22	5.70	-3.48	39	36.62	36.06	+0.56	16.61	16.83	-0.32	99
STANGER	2.15	5.78	-3.63	37	58.15	41.22	+16.93	23.16	20.69	+2.47	112
UMBOMBO											
VRYHEID	2.76	6.10	-3.34	45	45.58	34.16	+11.42	15.53	16.74	-1.21	93
WEENEN	4.52	4.03	+0.49	112	28.47	26.34	+2.13	12.62	12.01	+0.61	105
<u>BASUTOLAND.</u>											
MAFETENG	3.56	4.09	-0.53	87	30.10	29.93	+0.17	15.33	11.63	+3.70	132
<u>TRANSVAAL.</u>											
BARBERTON	2.24	4.68	-2.44	48	33.81	30.18	+3.63	14.31	13.49	+0.82	106
BELFAST	2.42	5.23	-2.81	46	29.90	31.16	-1.26	13.54	15.11	-1.57	90
BETHAL	2.89	4.74	-1.85	61	36.00	28.76	+7.24	15.73	14.51	+1.22	108
BLOEMHOF	0.80	2.11	-1.31	38	16.82	18.34	-1.52	4.95	6.59	-1.64	75
ELIM HOSPITAL	3.55	4.71	-1.16	75	27.66	31.31	-3.65	9.09	11.11	-2.02	82
ERMELO	2.72	4.87	-2.15	56	29.16	29.22	-0.06	14.04	15.61	-1.57	90
HAENERTSBURG	4.93	5.56	-0.63	89	39.16	37.10	+2.06	19.53	13.72	+5.81	142
HEIDELBERG	2.00	4.49	-2.49	45	32.93	28.05	+4.88	12.87	13.44	-0.57	96
JO'BURG UNION OBS.	1.95	4.73	-2.78	41	29.87	29.47	+0.40	10.42	13.55	-3.13	77
JOUBERT PARK	2.84	5.37	-2.53	53	33.68	32.60	+1.08	13.45	14.53	-1.08	93
KLERKSDORP	2.07	3.59	-1.52	58	28.41	22.88	+5.53	11.48	9.52	+1.96	121
KOMATIPOORT	0.83	3.80	-2.97	22	41.51	25.78	+15.73	18.92	9.17	+9.75	206
LICHTENBURG	3.44	3.65	-0.21	94	26.47	23.47	+3.00	9.35	9.49	-0.14	99
MESSINA	3.62	2.85	+0.77	127	16.72	14.24	+2.48	7.57	6.23	+1.34	121
MIDDELBURG	5.32	4.77	+0.55	112	33.30	28.90	+4.40	16.53	13.89	+2.64	119
NYLSTROOM	3.09	3.69	-0.60	84	27.14	24.45	+2.69	9.04	10.18	-1.14	89
PIETERSBURG	2.62	3.69	-1.07	71	18.77	20.52	-1.75	8.94	9.26	-0.32	96
PIET RETIEF	3.62	6.20	-2.58	58	37.57	35.58	+1.99	18.55	17.96	+0.59	103
PILGRIMS REST	4.90	5.37	-0.47	91	40.89	38.85	+2.04	18.82	14.25	+4.57	132
POTCHEFSTROOM	3.81	3.93	-0.12	97	31.63	23.76	+7.87	12.20	10.41	+1.79	117
PRETORIA	2.88	4.42	-1.54	65	36.27	28.28	+7.99	11.59	13.08	-1.49	88
ROOIBERG	1.50	3.59	-2.09	42	24.84	23.23	+1.61	7.19	10.25	-3.06	70
RUSTENBURG	1.72	4.09	-2.37	42	33.59	25.52	+8.07	9.75	11.02	-1.27	88
STANDERTON	3.12	46.4	-1.52	67	31.86	29.58	+2.28	12.47	14.56	-2.09	86
VILLA NORA	0.91	3.20	-2.39	28	16.38	17.53	-1.15	6.07	7.41	-1.34	82
WAKKERSTROOM	0.92	4.84	-3.92	19	31.34	30.90	+0.44	11.34	15.44	-4.10	73
WOODBUSH	9.89	10.56	-0.67	94	84.31	68.03	+16.28	33.59	25.47	+8.12	132
ZEERUST	1.29	3.72	-2.42	35	25.19	23.20	+1.99	8.30	9.55	-1.25	87
<u>SWAZILAND.</u>											
MBABANE	6.37	8.42	-2.06	76	58.84	54.03	+4.81	24.09	24.26	-0.17	66

## RAINFALL, DECEMBER 1936. (CONTINUED.)

STATION	DEC. 1936	NORMAL	DIFF.	%	FROM 1/1/36	NORMAL	DIFF.	FROM 1/7/36	NORMAL	DIFF.	SEA- SON- AL %	
<u>CAPE PROVINCE - SUMMER RAINFALL AREA.</u>												
ALIWAL NORTH	3.10	2.03	+1.07	153	20.67	18.98	+1.69	11.69	7.39	+4.30	158	
BEAUFORT WEST	1.02	0.83	+0.19	123	7.26	9.26	-2.00	3.76	3.45	+0.31	109	
BEDFORD	1.12	2.90	-1.78	39	27.40	27.46	-0.06	5.41	12.09	+3.32	127	
BRITSTOWN	0.00	0.88	-0.88	0	9.11	10.96	-1.85	2.71	3.21	-0.50	84	
CARNARVON	0.24	0.48	-0.24	50	8.53	7.80	+0.73	3.34	2.29	+1.05	146	
EAST LONDON												
FRASERBURG	0.93	0.42	+0.51	222	5.23	6.64	-1.41	2.72	1.96	+0.76	139	
GEORGE	2.73	3.21	-0.48	85	36.78	34.12	+2.66	22.75	17.00	+5.75	134	
GRAAFF REINET	1.94	1.48	+0.46	131	20.22	14.03	+6.19	10.59	6.12	+4.47	173	
GRAHAMSTOWN	1.82	1.82	+0.00	100	24.32	21.34	+2.98	15.79	10.69	+5.10	148	
GRIGUATOWN	0.43	1.37	-0.94	31	8.59	12.61	-4.02	2.66	3.84	-1.18	69	
GROOTFONTEIN	1.45	1.48	-0.03	98	14.50	13.57	+0.83	7.30	5.15	+2.15	142	
HANOVER	0.60	1.09	-1.09	0	10.29	14.00	-3.71	2.30	4.54	-2.24	51	
HOPETOWN	0.61	1.12	-0.51	55	12.05	12.21	-0.16	5.24	4.02	+1.22	130	
IDUTYWA	2.77	3.42	-0.65	81	28.98	24.66	+4.32	13.80	12.73	+1.07	108	
KENILWORTH	0.72	0.41	+0.31	176	4.11	5.70	-1.59	1.38	1.58	-0.20	87	
KIMBERLEY	2.19	2.01	+0.18	109	21.59	15.60	+5.99	10.08	5.63	+4.45	179	
KINGWILLIAMSTOWN	2.05	2.71	-0.66	76	20.01	24.98	-4.97	11.09	11.77	-0.08	100	
KOKSTAD	2.25	4.48	-2.23	50	26.60	30.08	-3.48	11.10	13.74	-2.64	81	
MATJESFONTEIN	2.40	0.32	+2.08	749	8.96	6.62	+2.34	6.69	2.82	+3.87	237	
MACLEAR	2.05	5.27	-3.22	39	32.41	33.07	-0.66	13.93	14.37	-0.44	97	
MAFEKING	0.91	3.49	-2.58	26	25.40	20.53	+4.87	10.13	8.90	+1.23	114	
MOSSEL BAY	2.30	1.30	+1.00	177	17.58	17.00	+0.58	10.59	8.64	+1.95	122	
PHILIPSTOWN	0.00	1.13	-1.13	0	9.35	13.06	-3.81	3.53	4.23	-0.70	84	
PORT ELIZABETH	1.14	1.07	-0.53	68	21.81	22.73	-0.92	13.59	12.43	+1.16	109	
PORT ST. JOHNS	5.64	5.37	+0.27	105	61.63	47.61	+14.02	26.74	23.33	+3.41	115	
PRINSKA	0.34	0.79	-0.45	43	4.43	9.35	-4.92	1.15	2.55	-1.40	45	
PRINCE ALBERT ROAD	1.97	0.31	+1.66	635	6.01	4.17	+0.84	3.78	1.72	+2.06	220	
QUEENSTOWN	1.31	2.99	-1.68	44	23.35	22.31	+1.04	13.46	9.02	+4.44	149	
SOMERSET EAST	0.88	3.49	-1.61	35	27.28	22.15	+5.13	15.44	9.98	+5.46	155	
STEYNSBURG	1.57	1.74	-0.17	90	16.04	14.77	+1.27	8.90	5.47	+3.43	163	
STEYTLERVILLE	1.16	0.94	+0.28	123	10.29	9.21	+1.08	5.34	4.03	+1.31	132	
SWELLENDAM	2.70	2.66	+0.04	101	34.66	30.95	+3.71	24.36	15.30	+9.06	159	
SYDNEYS HOPE	1.26	2.07	-0.81	61	22.70	22.79	-0.09	12.25	11.26	+0.99	109	
UITENAGE	1.05	1.51	-0.46	70	18.96	19.01	-0.05	12.26	9.74	+2.52	126	
UITATA	1.46	3.17	-1.71	46	27.99	25.65	+2.34	13.94	11.30	+2.64	124	
UNIONDALE	1.80	0.75	+1.05	240	11.53	13.10	-1.57	7.66	6.34	+1.32	121	
UPINGTON	0.78	0.63	+0.15	124	4.38	7.17	-2.79	1.94	1.88	+0.06	103	
VICTORIA WEST	0.00	0.66	-0.66	0	9.93	9.05	+0.88	3.86	3.39	+0.47	114	
WRYBURG	0.78	2.57	-1.79	30	25.08	18.94	+6.14	7.29	6.02	+1.27	121	
<u>CAPE PROVINCE - WINTER RAINFALL AREA.</u>												
CALEDON	-	2.04	0.90	+1.14	226	20.39	21.11	-0.72	12.52	11.29	+1.23	111
CALVINIA	1.33	0.20	+1.13	665	9.82	8.16	+1.66	8.30	3.47	+4.83	239	
CAPE TOWN ROY. OBS.	1.19	0.80	+0.39	149	20.13	24.65	-4.52	10.41	12.65	-2.24	82	
CERES	5.03	1.14	+3.89	441	39.51	40.47	-0.96	26.33	21.97	+4.36	120	
CLANWILLIAM	0.26	0.19	+0.07	137	8.90	8.59	-0.59	6.35	4.26	+2.09	149	
CARIES	0.78	0.12	+0.66	650	5.82	5.14	+0.68	5.09	2.58	+2.51	197	
GROOT DRAKENSTEIN	2.17	0.88	+1.29	247	29.02	35.18	-6.16	15.68	18.27	-2.59	86	
O'OKIEP	0.59	0.16	+0.43	368	4.70	6.66	-1.96	3.52	3.07	+0.45	115	
PIQUETBURG	0.77	0.62	+0.15	124	15.04	19.97	-4.93	9.03	10.80	-1.78	84	
PORT NOLLOTH	0.27	0.09	+0.18	300	1.95	2.37	-0.42	1.17	1.12	+0.05	104	
SUNDERLAND	1.26	0.37	+0.89	341	9.75	9.09	+0.66	7.05	3.81	+3.24	185	
WORCESTER	1.83	0.37	+1.46	495	12.32	12.11	+0.21	9.85	6.30	+3.55	156	

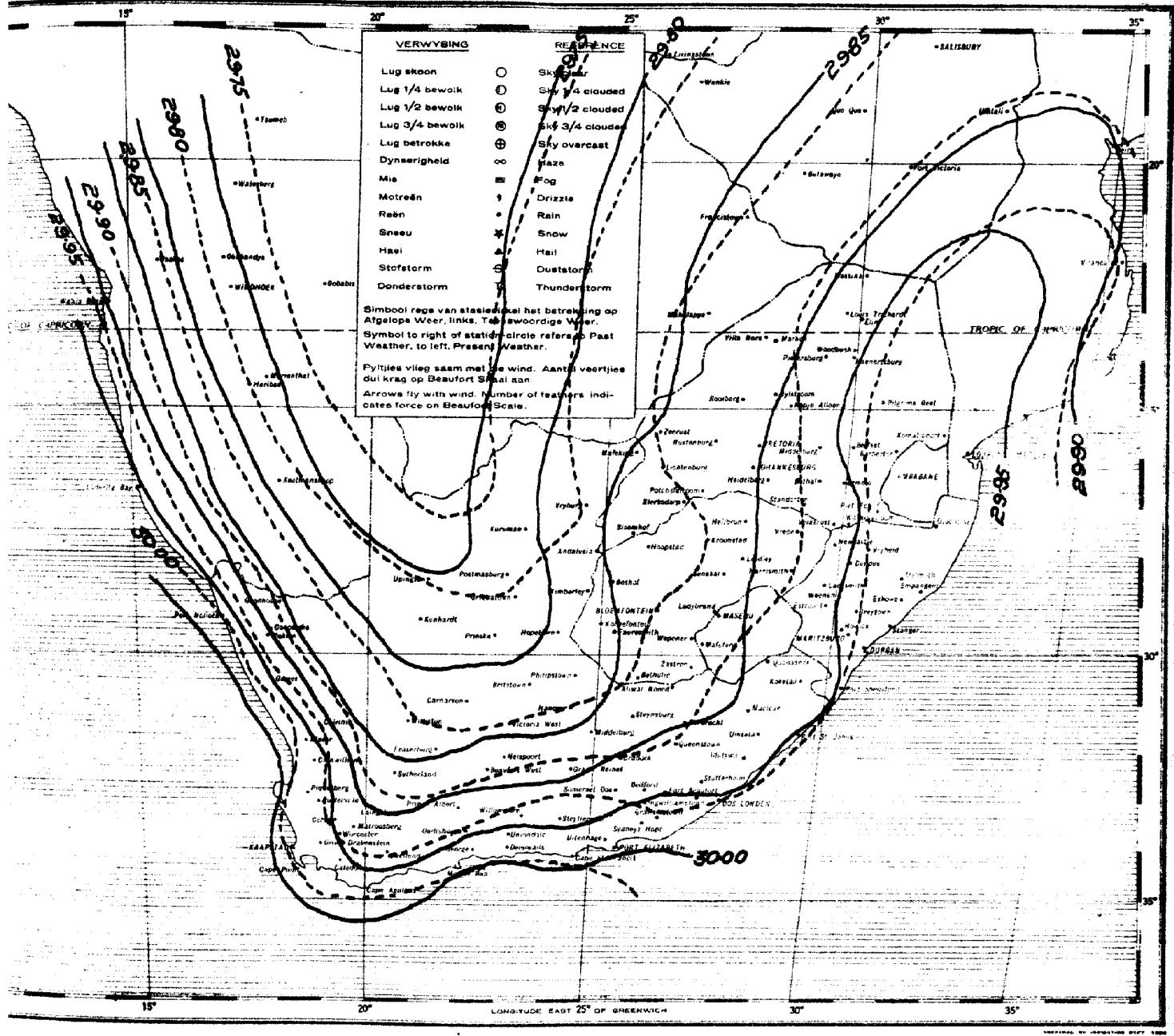
## AIR TEMPERATURES - DECEMBER 1936.

STATION	MAXIMUM MEAN NORMAL DIFF.			MINIMUM MEAN NORMAL DIFF.			MONTHLY MEAN MEAN NORMAL DIFF.			ABS. MAX.	DATE	ABS. MIN.	ABS. DATE
<u>CAPE PROVINCE:</u>													
ALIWAL NORTH	85.8	84.6	+1.2	54.8	54.5	+0.3	70.3	69.6	+0.7	98.0	21	45.0	8
BRISTOWN	91.0	90.9	+0.1	60.0	58.5	+1.5	75.5	74.7	+0.8	101.0	20	43.0	8
CAPE L'AGULHAS	70.6	71.1	-0.5	58.5	59.8	-1.0	64.7	65.5	-0.8	75.0	12,20,31	47.0	8
CAPE TOWN	76.7	77.3	-0.6	59.0	58.6	+0.4	67.9	68.0	-0.1	103.1	1	51.9	8
CALA	81.3	79.8	+1.5	56.6	55.3	+1.3	69.0	67.6	+1.4	95.0	25	48.0	18
CARNARVON	86.8	87.5	-0.7	54.9	56.6	-1.7	70.9	72.1	-1.2	101.0	18	38.0	7
GEORGES	84.3	83.0	+1.3	54.6	53.9	+0.7	69.5	68.5	+1.0	104.0	1	44.0	8,9,1
CRADOCK	87.0	87.1	-0.1	55.6	55.3	+0.3	71.3	71.2	+0.1	102.0	21	45.0	9
CLANWILLIAM	89.5	89.1	+0.4	57.4	56.8	+0.6	73.5	73.0	+0.5	110.5	1	46.0	8
DEEPWALLS	71.5	72.7	-1.2	53.6	54.5	-0.9	62.6	63.6	-1.0	90.0	1	42.5	8
EAST LONDON	72.9	75.2	-2.3	61.0	62.7	-1.7	67.0	69.0	-2.0	78.5	21	51.0	8
GOODHOUSE	97.8	99.3	-1.5	66.0	68.9	-2.9	81.9	84.1	-2.2	111.0	20	55.0	8
GRAAFF REINET	88.7	87.4	+1.3	57.7	58.1	-0.4	73.2	72.8	+0.4	104.6	20	45.5	10
GRAHAMSTOWN	77.8	77.3	+0.5	53.7	54.5	-0.8	65.8	65.9	-0.1	96.6	5	42.5	18
GROOT DRAKENSTEIN	80.5	82.6	-2.1	55.6	57.2	-1.6	68.1	69.9	-1.8	101.2	1	49.5	7,8
GROOTFONTEIN	84.9	85.7	-0.8	51.7	52.7	-1.0	68.3	69.2	-0.9	95.3	20	39.8	9
IDUITYWA	77.4	76.7	+0.7	53.8	55.0	-1.2	65.6	65.9	-0.3	95.0	2	41.5	9
ENHARDT	92.8	94.7	-1.9	62.7	63.1	-0.4	77.8	78.9	-1.1	105.0	20	47.8	8
ZIMBERLEY	88.8	89.9	-1.1	61.5	61.4	+0.1	75.2	75.7	-0.5	98.6	21	49.0	9
KINGWILLIAMSTOWN	81.2	82.5	-1.3	58.8	58.4	+0.4	70.0	70.5	-0.5	99.0	2	49.0	18
GLAVER	83.0	86.8	-3.8	58.0	58.5	-0.5	70.5	72.7	-2.2	106.9	1	50.2	8
KOKSTAD	79.0	77.5	+1.5	54.2	53.0	+1.2	66.6	65.3	+1.3	90.0	20	48.0	1
KURUMAN	90.2	89.7	+0.5	57.4	58.3	-0.9	73.8	74.0	-0.2	99.0	21	45.0	7
MAPEKING	87.4	87.6	-0.2	59.8	60.9	-1.1	75.6	74.3	-0.7	96.6	24	52.0	3
MOSSEL BAY	72.7	73.6	-0.9	60.6	61.0	-0.4	66.7	67.3	-0.6	78.0	1,21,29	52.0	8
NELSPoORT	82.6	87.3	-4.7	54.5	57.2	-2.7	68.6	72.3	-3.7	95.5	20	41.7	8
O'OKIEP	82.1	84.1	-2.0	53.7	56.5	-2.8	67.9	70.3	-2.4	98.0	19	42.8	8
DUDTSHOORN	87.0	87.4	-0.4	56.5	57.0	-0.5	71.8	72.2	-0.4	103.0	1	47.0	9
PORT ELIZABETH	75.3	73.9	+1.4	61.1	61.3	-0.2	68.2	67.6	+0.6	99.0	2	52.0	9
PORT MOLLOTH	65.9	66.2	-0.3	53.2	52.4	+0.8	59.6	59.3	+0.3	80.0	2	45.0	14
PORT ST. JOHNS	74.6	78.2	-3.6	64.2	64.4	-0.2	69.4	71.3	-1.9	85.0	12	57.0	2
POSTMASBURG	90.0	88.1	+1.9	62.6	61.8	+0.8	76.3	75.0	+1.3	98.4	24	46.8	8
PRIESKA	89.8	93.6	-3.8	62.9	64.7	-1.8	76.4	79.2	-2.8	101.0	20	48.0	8
QUEENSTOWN	86.0	84.1	+1.9	57.6	56.1	+1.5	71.8	70.1	+1.7	100.0	20	46.0	18
RIETPOORT	-	84.0	-	55.0	-	-	69.5	-	-	-	-	-	-
SOMERSET EAST	83.7	82.5	+1.2	57.0	55.6	+1.4	70.4	69.1	+1.3	101.5	20	44.1	9
SUTHERLAND	76.5	80.7	-4.2	46.9	46.7	+0.2	61.7	63.7	-2.0	92.0	21	31.0	8
SYDNEYS HOPE	78.9	77.1	+1.8	55.6	56.0	-0.4	67.3	66.6	+0.7	95.0	2	47.0	8,9
HITTHAGE	81.5	81.8	-0.3	57.6	58.7	-1.1	69.6	70.3	-0.7	101.0	2	47.9	1
IMATA	78.2	79.8	-1.6	58.0	58.2	-0.2	68.1	69.0	-0.9	96.0	2	49.0	18
IPINGTON	94.5	94.7	+0.2	65.5	65.7	-0.2	80.0	80.2	-0.2	105.0	31	50.9	8
JAN WYKSVLEI	90.4	92.2	-1.8	60.9	60.5	+0.4	75.7	76.4	-0.7	103.0	20	45.0	8
VICTORIA WEST	88.8	86.0	+2.8	-	53.7	-	-	69.9	-	101.0	20	-	-
VRYBURG	93.2	89.7	+3.5	60.0	61.3	-1.3	76.6	75.5	+1.1	102.0	21	51.0	6
WILLOWMORE	-	84.9	-	-	51.2	-	-	68.1	-	-	-	-	-
<u>TRANSVAAL:</u>													
BARBERTON	82.9	82.7	+0.2	63.0	62.8	+0.2	73.0	72.8	+0.2	98.0	7	54.0	1
BELFAST	74.4	74.1	+0.3	49.1	50.1	-1.0	61.8	62.1	-0.3	82.0	7	36.0	3
CHRISTIANA	91.6	89.8	+1.8	59.5	59.4	+0.1	75.6	74.6	+1.0	99.0	23,24	52.0	8
EREMEO	80.6	77.4	+3.2	52.9	53.4	-0.5	66.8	65.4	+1.4	90.0	24	43.0	1
HEIDELBERG	83.5	81.8	+1.7	55.7	56.3	-0.6	69.6	69.1	+0.5	92.6	22	42.7	9
JOHANNESBURG	78.7	76.1	+2.6	57.0	55.2	+1.8	67.9	65.7	+2.2	87.5	21	47.1	2
KLERKS DORP	87.1	86.1	+1.0	60.1	60.2	-0.1	73.6	73.2	+0.4	96.1	22	51.0	9
KOMATIPOORT	88.7	92.2	-3.5	67.2	68.4	-1.2	78.0	80.3	-2.3	105.0	26	56.0	3
KOPJE ALLEEN	87.6	86.4	+1.2	62.1	62.0	+0.1	74.9	74.2	+0.7	96.6	6	50.1	3
LOUIS TRICHARDT	-	81.5	-	61.0	-	-	71.3	-	-	-	-	-	-
MARMEN	84.7	85.2	-0.5	63.1	64.3	-1.2	73.9	74.8	-0.9	97.0	6	51.0	1
MOSCINA	92.2	90.7	+1.5	70.0	68.9	+1.1	81.1	79.8	+1.3	106.4	7	60.0	1
HEDDELBURG	81.7	81.3	+0.4	55.7	55.9	-0.2	68.7	68.6	+0.1	90.0	22,24	45.0	3
NYLSTROOM	86.5	84.4	+2.1	59.1	60.1	-1.0	72.8	72.3	+0.5	96.0	5 or 6	48.0	2
PIETERSBURG	81.3	82.0	-0.7	59.7	59.2	+0.5	70.5	70.6	-0.1	92.1	6	48.0	3

A I R T E M P E R A T U R E S - D E C E M B E R 1936.  
(CONT'D).

STATION	M A X I M U M			M I N I M U M.			M O N T H L Y M E A N .			ABS.	ABS.		
	MEAN	NORMAL	DIFF.	MEAN	NORMAL	DIFF.	MEAN	NORMAL	DIFF.	MAX.	DATE	MIN.	DATE
<u>TRANSVAAL:</u> (Continued)													
PIET RETIEF	79.1	77.9	+1.2	58.0	57.5	+0.5	68.6	67.7	+0.9	91.9	26	49.2	1
PILGRIMS REST	80.3	78.7	+1.6	56.2	56.9	-0.7	68.3	67.8	+0.5	92.0	7	42.0	3
POTCHEFSTROOM	85.7	85.6	+0.1	58.7	57.7	+1.0	72.2	71.7	+0.5	95.0	22	49.0	9
PRETORIA	85.2	83.6	+1.6	60.7	60.3	+0.4	73.0	72.0	+1.0	93.2	24	50.6	3
RUSTENBURG	87.6	87.2	+0.4	61.4	60.7	+0.7	74.5	74.0	+0.5	96.0	6	52.0	3
STANDERTON	83.1	80.6	+2.5	54.4	54.4	+0.0	68.8	67.5	+1.3	94.0	22	43.0	1
WAKKERSTROOM	77.6	74.4	+3.2	50.9	52.2	-1.3	64.3	63.3	+1.0	85.2	21	41.1	1
ZEERUST	88.0	86.2	+1.8	60.7	61.1	-0.4	74.4	73.7	+0.7	97.2	24	51.0	3
<u>NATAL:</u>													
DUNDEE	83.4	81.9	+1.5	56.9	56.6	+0.3	70.2	69.3	+0.9	98.0	25	48.0	2
DURBAN POINT	79.1	80.0	-0.9	68.3	68.2	+0.1	73.7	74.1	-0.4	86.4	31	64.4	1
EMPANGENI	83.9	85.4	-1.5	65.8	65.7	+0.1	74.9	75.6	-0.7	101.0	13	58.0	19
ESHOWE	80.1	78.9	+1.2	61.7	62.3	-0.6	70.9	70.6	+0.3	95.0	13	55.5	1
ESTCOURT	81.7	81.4	+0.3	58.1	57.8	+0.3	69.9	69.6	+0.3	94.0	23	48.0	6
LADYSMITH	88.7	87.2	+1.5	60.7	60.3	+0.4	74.7	73.8	+0.9	99.0	21	49.0	1
MARITZBURG	80.9	80.5	+0.4	60.9	61.1	-0.2	70.9	70.8	+0.1	94.0	25	52.4	14
OTOBOTINI	86.6	88.3	-1.7	67.7	69.0	-1.3	77.2	78.7	-1.5	99.0	13	59.5	20
PORT SHEPSTONE	76.4	78.3	-1.9	66.0	63.1	+2.9	71.2	70.7	+0.5	82.0	21	61.0	18,19
STANGER	84.0	82.9	+1.1	65.1	65.4	-0.3	74.6	74.2	+0.4	94.0	13	59.0	20
VRYHEID	83.7	81.2	+2.5	57.9	57.6	+0.3	70.8	69.4	+1.4	93.2	21	49.6	1
WEENEN	87.9	88.8	-0.9	61.4	59.4	+2.0	74.7	74.1	+0.6	100.0	23	49.0	1
<u>ORANGE FREE STATE:</u>													
BETHULIE	86.2	86.8	-0.6	56.2	56.5	-0.3	71.2	71.7	-0.5	97.1	21	43.8	9
BLOEMFONTEIN	83.5	86.2	-2.7	55.0	57.9	-2.9	69.3	72.1	-2.8	94.1	21	38.8	9
FAURESMITH	86.0	85.0	+1.0	55.9	57.1	-1.2	71.0	71.1	-0.1	97.0	21	43.0	9
HARRISMITH	76.5	74.8	+1.7	51.4	51.3	+0.1	64.0	63.1	+0.9	84.0	23,24	42.0	1
KROONSTAD	85.5	85.4	+0.1	57.2	57.9	-0.7	71.4	71.7	-0.3	95.0	22	47.0	9
LADYBRAND	80.5	80.9	-0.4	54.0	54.9	-0.9	67.3	67.9	-0.6	89.0	21,22	44.0	10
LINDLEY	81.3	82.7	-1.4	54.5	55.1	-0.6	67.9	68.9	-1.0	91.0	22	45.0	22
WEPENER	83.8	84.4	-0.6	56.3	55.8	+0.5	70.1	70.1	+0.0	94.5	21	40.0	9
<u>BASUTOLAND:</u>													
BUTHE BUTHE	80.2	82.2	-2.0	53.6	53.6	+0.0	66.9	67.9	-1.0	90.0	23	43.0	1
MAFETENG	80.5	80.2	+0.3	56.5	55.6	+0.9	68.5	67.9	+0.6	92.0	21	46.0	8
MOHALES HOEK	83.3	82.9	+0.4	51.0	54.5	-3.5	67.2	68.7	-1.5	92.0	21	41.0	11
MOKHOTLONG	76.4	74.3	+2.1	47.4	48.1	-0.7	61.9	61.2	+0.7	89.0	23	42.0	9
QACHASNEK	75.6	73.9	+1.7	52.1	49.8	+2.3	63.9	61.9	+2.0	85.0	21	44.0	9,10
<u>RECHUANALAND:</u>													
DIKGATLONG	90.9	90.3	+0.6	64.2	65.8	-1.6	77.6	78.1	-0.5	102.0	6	52.0	3
GABERONES	91.1	90.3	+0.8	62.5	61.9	+0.6	76.8	76.1	+0.7	100.0	6	52.0	4
MAHALAPYE	90.0	89.2	+0.8	62.6	64.9	-2.3	76.3	77.1	-0.8	101.0	6	51.0	3
<u>SWAZILAND:</u>													
MBABANE	75.6	80.5	-4.9	55.9	61.6	-5.7	65.8	71.1	-5.3	91.0	6 or 7	46.0	3
STEGI	80.3	80.9	-0.6	59.6	60.8	-1.2	70.0	70.9	-0.9	86.0	10	43.0	16

# **WEERKAART — WEATHER MAP**



## CHART I.

DECEMBER, 1936: MEAN ATMOSPHERIC PRESSURE AT 8.30 a.m.

The broken lines indicate the normal distribution in December

## WEERKAART — WEATHER MAP

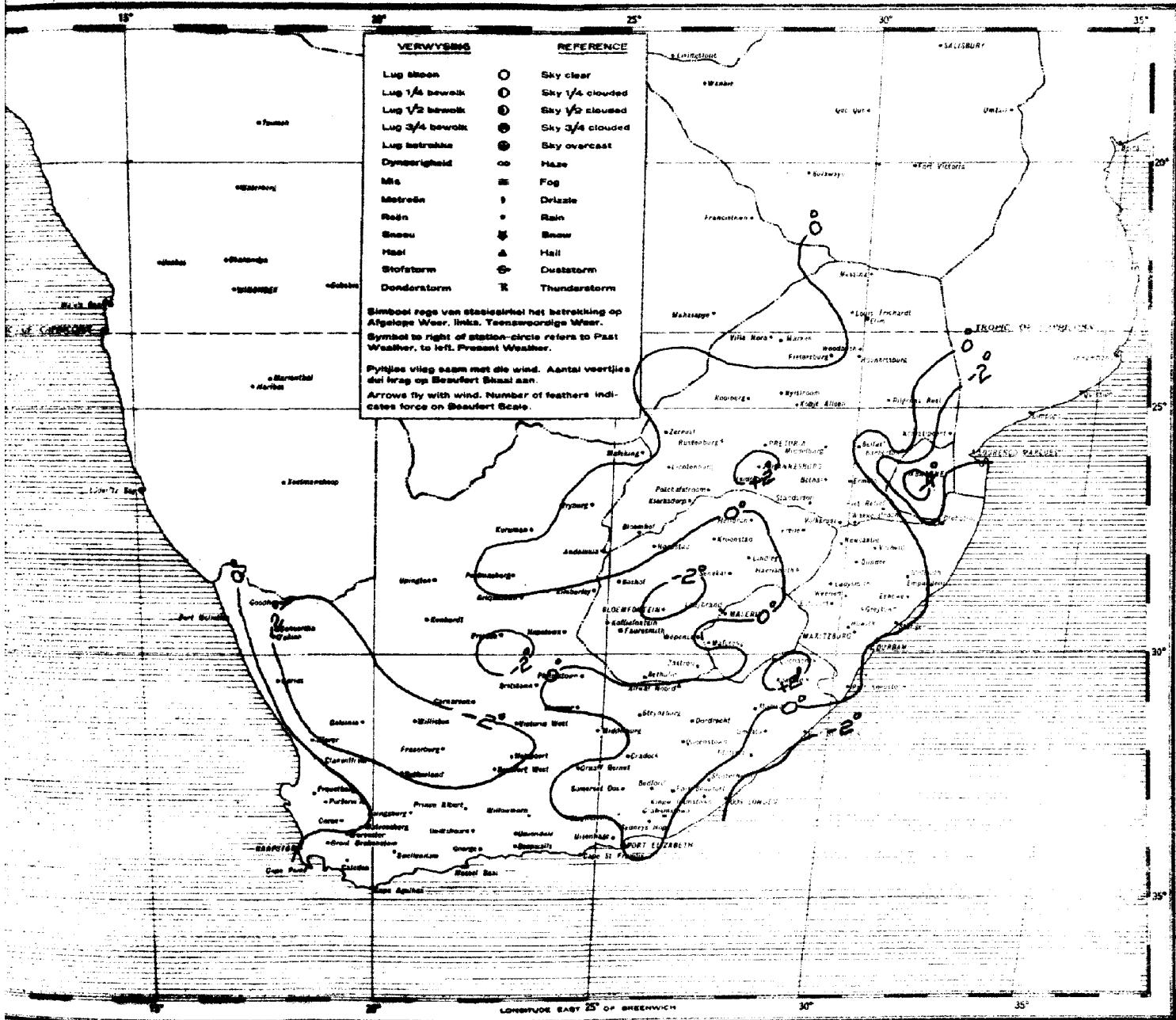


CHART II.

DECEMBER, 1936:— DEVIATION (in °F.) OF MEAN TEMPERATURE FROM NORMAL.

# WEERKAART — WEATHER MAP

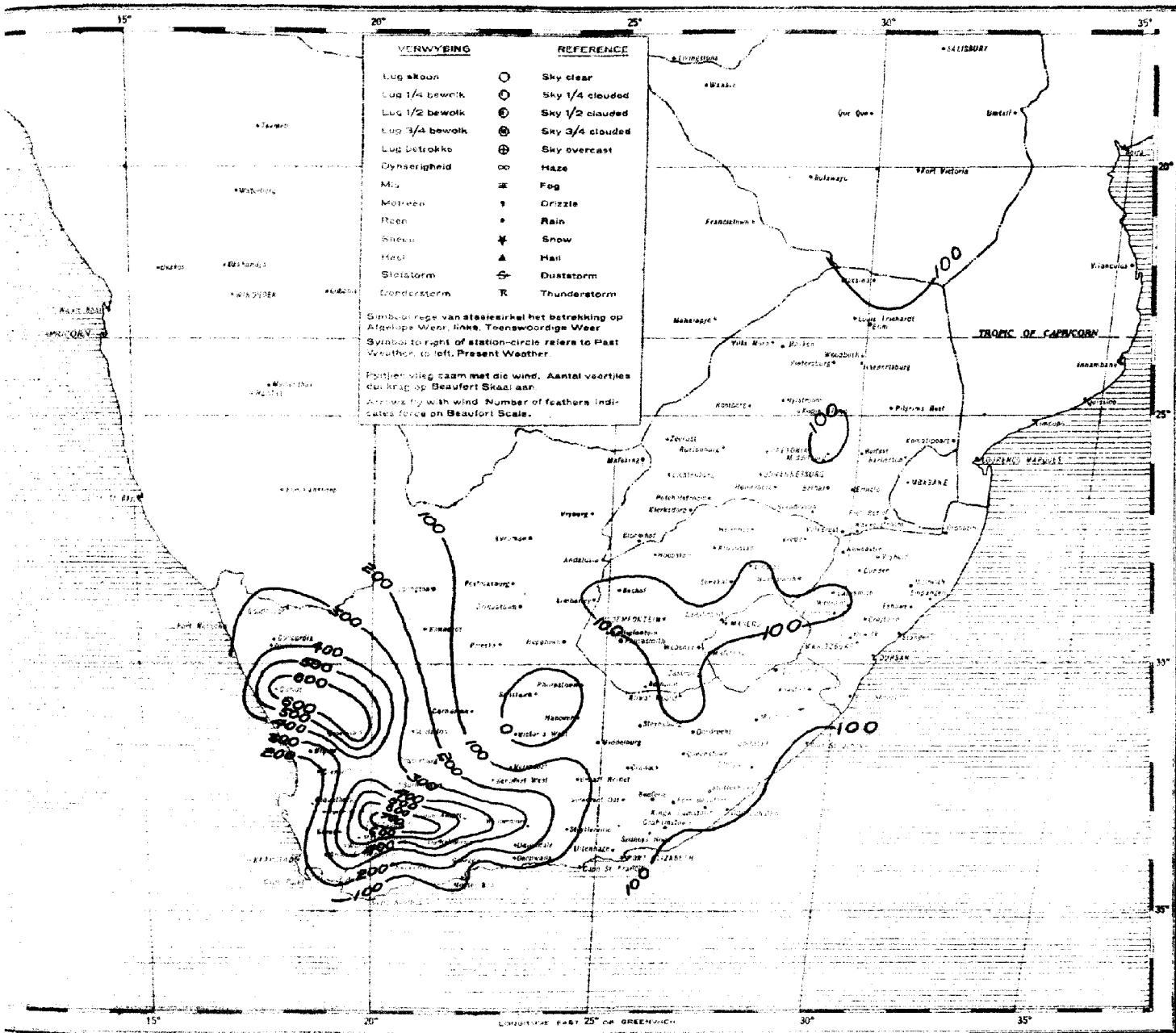


CHART III.

DECEMBER 1936 - RAINFALL AS PERCENTAGE OF NORMAL.

# WEERKAART — WEATHER MAP

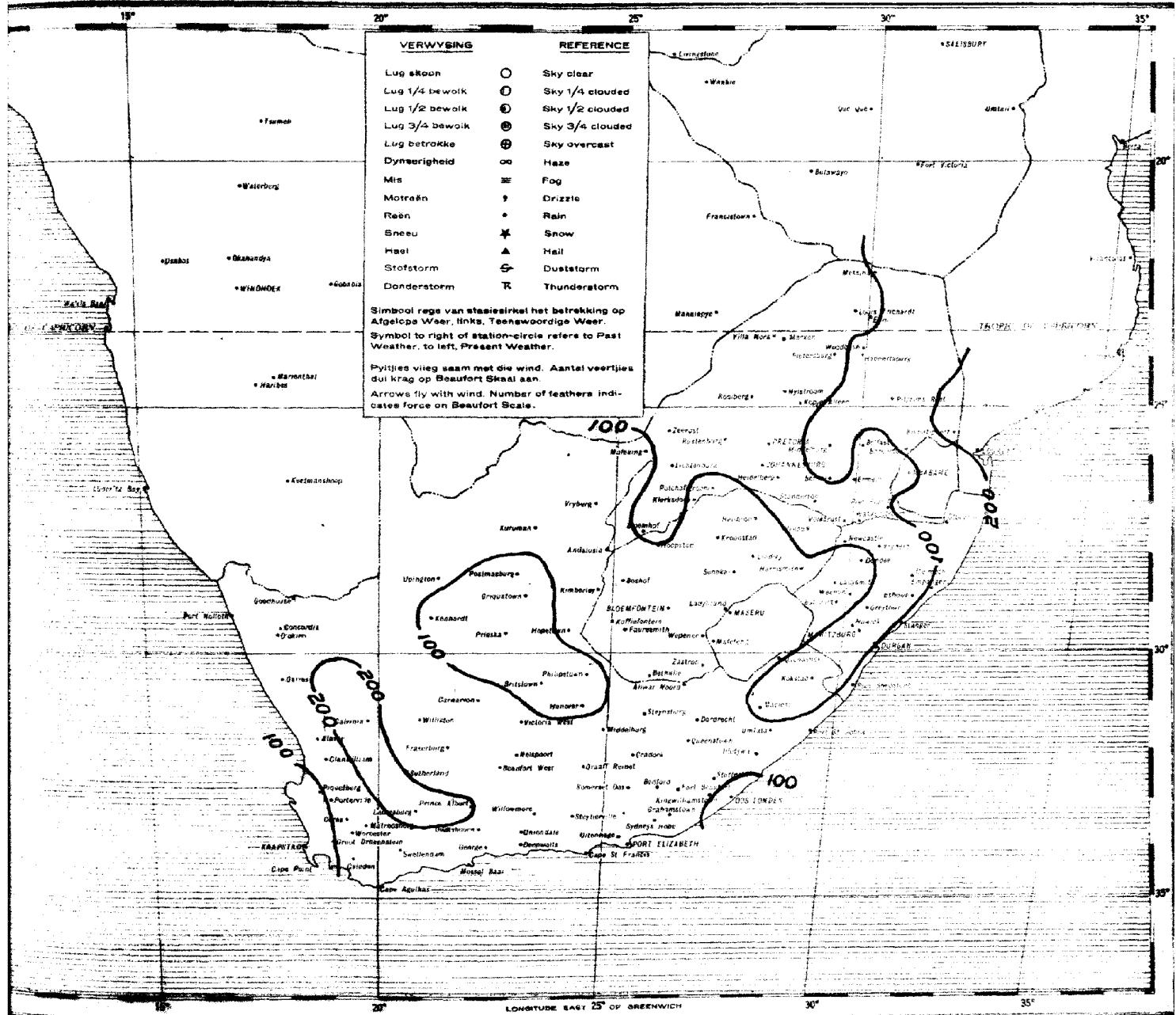


CHART IV

DECEMBER 1936:- Seasonal Precipitation (1st July to 31st December),  
shown as percentage of normal.